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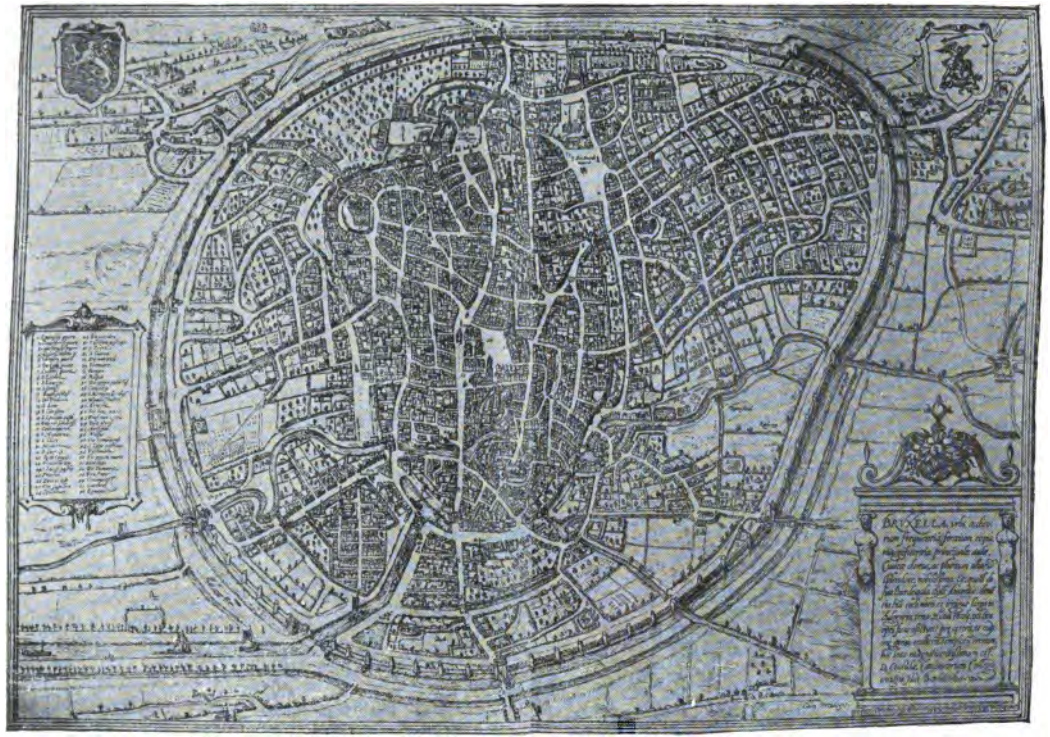

PLAN OF BRUSSELS IN 1572

Taken from the work entitled "Civitates Orbis Terrarum," published by Braun, with plates by Hogenberg.

This fairly typical street map of an important, prosperous, old walled city, which happily had not yet commenced to press against its walls, is interesting from many points of view. The distinction between major and minor streets is marked; there will scarcely be failure to note how rare is the straight line, every thoroughfare taking graceful curves and varying in width. The form and function of the open space, the orderly waterbank treatment, the Civic Center, the absence of country parks will be observed. The picture is reproduced through the courtesy of the Avery Library of Columbia University.

DR. HARLAN P. KELSEY
EAST BOXFORD, MASS.

THE WIDTH AND ARRANGEMENT OF STREETS

A STUDY IN TOWN PLANNING

BY

CHARLES MULFORD ROBINSON

AUTHOR OF

The Improvement of Towns and Cities
Modern Civic Art and The Call of the City

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TO THE

Department of Landscape Architecture

OF

Harvard University

AND TO ITS

Chairman, James Sturgis Pray

UNDER WHOSE DIRECTION ARE GIVEN THE HARVARD COURSES IN CITY PLANNING

THIS THESIS

IS

Affectionately Dedicated

Breadth of interest, readiness of sympathy with others' efforts,
comradeship and the inspiration of enthusiasm and con-
secration are factors that there, as ever
count for more than does mere
richness of material

"The art of laying-out either the nucleus of a new city or the extension of an existing one to the best advantage of its population, as regards economy, beauty and health, both now and in time to come, is, for want of a better term, called Town Planning."

Opening words from the Preface of the "Transactions," Town Planning Conference, London, 1910.

THE author would be glad if he could make acknowledgement for all the assistance and suggestions that have rendered this volume possible. The full enumeration of their sources would almost, however, make a book in itself. To some extent the reader, in noting the authors quoted, will perceive where thanks are especially due.

But a great deal is the result of observation, some thirty towns and cities from the Atlantic Coast to the mid-Pacific having requested the writer, in recent years, to study and diagnose their special needs as regards the city plan. A second special source of inspiration has been Harvard University, for an invitation, accepted a year ago, to be the university's guest for the prosecution of post-graduate research work in city planning, gave an opportunity for more thorough reading than the distractions of professional life normally afford. The third source was a recent European trip which differed from its predecessors in that, immediately following the course of reading, it made its special objective an international town planning conference in London.

At that conference the general thesis of the volume was offered. It was the kind reception accorded to it there, by specialists, that encouraged its presentation in extended form to that larger public with whom, in the last analysis, rests the responsibility for actual town planning.

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THE WIDTH AND ARRANGEMENT

OF

STREETS

INTRODUCTION

THE benefits which are sought by a scientific replanning of cities and towns are, broadly, threefold. They lie in a bettering of those circulatory problems that have been created by indirect streets and congested traffic; in the improvement of social conditions in many directions; and in increasing the visible beauty and splendor of cities. Gains are anticipated in economy and efficiency, in comfort, and in looks. As to the planning of new towns, or the new parts of existing towns, if this be done in a scientific way the proverbial ounce of prevention may be reasonably expected to be worth at least the pound of cure.

In either of these cases, the advantages which accrue to the community as a whole accrue also to the individuals who make up the community—whether owners or tenants. In the present state of society, land division projects which might do injury to landowners and home builders are not worth considering, even though they should be, conceivably, for the good of a non-property owning class. To be practical, town planning projects must be reasonable and considerate of all proper interests.

Alike on the part of the public and on that of individuals, and therefore healthfully, a demand has grown up for town remodelling and for more thought of the future in tract development. It has grown out of a wish to forestall, or the need to correct, the condition which has been heretofore created by large and rapid municipal growth. Typical conditions have been those of streets filled with a traffic which they were unable to carry with safety and speed; have been the housing of the poor amid surroundings injurious to moral, physical and civic health; have been the loss of play space, for children and for adults; have been the reduction of industrial and commercial efficiency, the inconvenient location and the undignified crowding of public buildings; the excessive cost of corrective as compared with preventive measures.

The replanning of cities and towns, or their careful planning at the start, and the comprehensive platting of their outlying sections are concerned with all such conditions. For these plans have to do with the urban framework, as this is made up of streets and avenues and open spaces of one sort and another. They may be said to treat of the skeleton of the city, of that which gives to the city its constructional form; and they are expected to be determined by the needs not of districts only but of the community as a whole. These plans have little to do with details, such as billboards, pavements, etc., but are intimately concerned, as has been already suggested, with the convenience of the streets for traffic purposes, with the proper location, and if possible the grouping, of public buildings, with the development of neighborhood centers which shall become a moral and social force, with the location of parks and their accessibility to those who most need them, with economical housing, and

with the attractive development of residential and suburban tracts.

It is with the latter phase that this book will attempt particularly to deal. The subject may seem restricted, but it is to be observed that the city has no financial investment so large as that represented in its streets—usually twenty-five to forty per cent of the whole land area—and that no items in its expenses reach a larger total than those for the construction and maintenance of streets. Still more important, the streets' location and development touch closely the life of every person who lives in town. In fact, "the most important features of city planning," it has been well said,* "are not the public buildings, not the railroad approaches, not even the parks and playgrounds. They are the location of streets, the establishment of block lines, the subdivision of property into lots, the regulations of buildings, and the housing of the people."

In discussing the platting of streets, it has seemed necessary to plead for less standardization, for wider main streets, and for the narrowing of those which have little traffic value. The latter point of the discussion has had in the past so little popular consideration, that the author has thought best to focus particular attention upon it. No claim is made to originality in this thought, or that the arguments will possess novelty to those who most have studied town and city planning. But an attempt has been made, while presenting the matter simply, to look at the problem broadly and honestly. This has rendered it impossible to consider minor streets alone. In the outer rim of cities the minor street is dependent for its life upon transportation facilities, and these must be of-

*John Nolen in "Madison: A Model City."

fered by main highways. Thus, in order to take the broad view, much must be considered besides the problem of a street by itself. One street, though every perfection were given to it, would bear only such relation to the whole street system as would a patch on an old fashioned and outgrown garment.

It might be said, indeed, that the average modern city has in its street system a garment so restricting it as to need entire replanning and recutting to make it comfortably serviceable and really up-to-date. Until this fact is recognized, all civic improvement work can be hardly more than an attempt to adapt an ancient and outworn city form to new and tremendously insistent municipal requirements. Most significant is such a reflection.

Without, then, magnifying or unduly emphasizing the current widespread town planning movement, the book is presented with the hope that it may be of value in the course of normal and ordinary city development. Hence the purpose of the volume is not to give the history of town planning, not to contrast the romantic and classical schools of it, but simply to help in a practical way regarding one important phase of it—a phase which concerns every owner of real estate and every citizen. And since the main arguments represent not the faith and theory of one man only, but the belief of the students of town and city planning in all nations which to-day are considering the subject, the book's message is given with abounding confidence.

Finally, though effort has been made to render proffered criticism constructive, there is realization that rules to govern generally town development are most difficult to enunciate. In recent years, the curse of city building has been too much adherence to fixed rules. In cities of different purposes—as industrial,

commercial, capital, or residential—different groups of considerations deserve most deference; in cities of like purpose, which are not on plains, no one street pattern should be generally applied. To impose on a site, without regard to its topography, any preconceived system, is to be false to the true principle of design. So the book is presented with no illusion as to its providing a panacea for every anatomical ill that towns are heir to. But perhaps—to stretch the patent medicine simile a little further—it may have an invigorating tonic value. There are some things as to street platting which it were better for the city, better for the tract developer, and better for the lot buyer or tenant to have more clearly understood. The author has endeavored to state these. With that purpose, some of the first, and the second, third and fourth chapters are devoted to pointing out defects in the usual present practice of street design and the advantages of a closer adjustment to function. Thereafter are the constructive suggestions.

CHAPTER I

MAIN DIVISIONS OF A STREET SYSTEM

THE development of suburban acreage property, by its division into lots and the cutting of streets, has proceeded on an enormous scale in recent years. It has been undertaken by individuals, corporations and associations. If thousands have marketed property in this way, the purchasers of it are to be counted by the tens and hundreds of thousands. Since the ultimate object is the setting of a family home, the degree of wisdom with which the work is done is a social and economic question of the first importance.

As cities expand to include these outlying areas, the layout given to the tracts becomes also a matter of great civic concern. Its effect upon the community as a whole—both in facilitating or hampering the further extension of area, and in the transaction of business or the pursuit of pleasure—tends to become paramount even to its effect on the locality platted.

Further, it is to be observed that this development of suburban tracts is due to the operation of economic and social forces of such character as to render inevitable a continuance of the movement, in one form or another. The cutting up of outlying acreage is not, that is to say, a fad, nor simply a momentarily popular financial craze, of which the bubble may be expected to burst. It results not only from the growth of cities, a growth which must continually push their streets

further out and open new ones; but it is the response to a new social demand.

This demand began with the removal of the necessity that all workmen live near their work. The term is relative, of course; but even so considered, "near" has been stretched by cheap, frequent, continuous and rapid transportation until to-day comparatively few are under that necessity. Those few are the laborers who are most poorly paid—as the push cart vendors and the sweat shop workers—or those whose hours of labor are longest,* or whose labor calls them to work at awkward and irregular times. Others who live in town do so from choice or from inertia.

The professional man nowadays is extremely likely to have an office in the city and a home in the outskirts; merchant and banker and broker may sleep in the country though their labor is in town; in multitudes the more progressive clerks and salesmen occupy the detached and semi-detached dwellings that make up the outer residence zones of cities; in the early hours of the working day and again at its closing

* Some significant statistics on this point were given by Prof. Henry R. Seager, of Columbia University, New York, in a paper presented at the Congestion Conference held in New York City, March, 1908. He pointed out that the dispersion of the homes of employees from the place where they are employed is in inverse proportion to the length of their work-day. This he illustrated by a study of the printing industry, representing an eight-hour trade, the leather industry, representing a nine-hour trade, and the food industries, representing a ten-hour trade. A study of the employees in a number of establishments in these trades, all below Forty-second Street on Manhattan Island, indicated that the proportion of employees living in Manhattan, in the short-houred printing trade was 31%, in the longer-houred leather trade 42%, and in the still longer-houred food industries 74%. The showing that in the printing trade, with its comparatively good pay and short hours, more than two-thirds of the workers did not have their homes on Manhattan Island at all, is striking.

hours, rapid transit lines are crowded with lunch-box and dinner-pail bearers—with the great army of the employed, journeying to and from their work—riding, because they live too far away to walk. This is the triumph of the modern city. It has come with the quickening and cheapening of urban mechanical transportation. It is the relief which has been developed as a blessed offset to the increasing pressure of modern industrial and commercial activity. At last it has become possible for the citizen to get away from work, and in multitudes he gets away. To be sure, there still are thousands of men who go to bed over their shops, or who sleep within call of the factory whistle; but other thousands, in a throng that grows with astonishing rapidity, considering how radical the domestic upheaval involved, have now a daily change of scene and air, and at nightfall enter into a peace which industry and commerce may not molest.

There is in this a social readjustment of incalculable value. But as yet it has expressed itself very inadequately on the city plan. We have simply prolonged our old time streets, in our haste projecting upon the fair landscape, broken though it be by hill and dale and water course, the humdrum street pattern of the town. And even that pattern should not in all cases have been humdrum. Within the confines of the original city, before the days of its expansion, the topography has not been always flat and featureless; nor, in spite of platting, have all streets been traffic highways.

Nevertheless, streets have generally been classified simply as busy and not busy. Or, at best, into three classes—an intermediate class, that might be expected to carry a moderate traffic, and proportioned accordingly, having been designated as "secondary

streets." Differences have thus been based, not on the kind of service but on its quantity. Accordingly, standardization attempts have been unsatisfactory. It is difficult to standardize the degree of a street's service, and in the fact we have seen one grade of streets soon merging into another. Then we discover that we have set up arbitrary standards, and that, if there be nothing to fix and hold the character of a street, it tends to change. The traffic changes with it; the old standardization breaks down; the original adjustment in structure and proportion becomes unsatisfactory.

Taking, now, the social point of view, and observing the change which has recently come over city life, we may note that in no one feature does a modern city differ more radically from its prototype than in the daily ebb and flow, inward and outward, of its tide of travel. That circumstance makes upon the street plan a demand for a strictly two-fold service—the one for traffic and the one for quiet residence—with an urgency unknown before. It offers the opportunity, and even the obligation, to create two distinct kinds of streets that shall serve in the best possible way these diverse needs.

Such a classification is plainly better than the superficial consideration of streets as simply of first and second, and possibly third, traffic value. It draws a clearer line, for in recognizing two different kinds of functions, it becomes possible to differentiate the street development so markedly that one use cannot merge into another. It may be noted, however, that since most retail business is dependent upon the existence of a stream of travel, those streets which serve for the latter's conveyance include so-called business streets. On the other hand, it should be added that all

main highways are not business streets. A leading traffic thoroughfare may give access to a freight house or to a park as certainly as to a department store.

Streets of each group are, therefore, variously developed. Yet all traffic streets have this much in common: They exist primarily to carry traffic and may be said to constitute the framework of the city. Their planning, as a class, should be prior to that of the minor streets; they should be, as we shall see in another chapter, direct, broad and of easy gradient, desirably also in many cases long and radial. Their function, as regards the travel they accommodate, is to shorten time between foci—commonly between the center of the city and its outer zones. They are designed to do this by facilitating rapidity of movement and shortening distance.

The streets that offer to residents refuge from these tidal traffic streams are the minor residential thoroughfares. The phrase which describes them is itself a definition. It excludes all main highways, all avenues and boulevards, and for the purposes of this discussion it shall be held to exclude all streets which carry a through travel that so much as even equals the traffic originating and terminating within the street itself. If we accept this as our understanding of the term we shall exclude also, from consideration here, all streets that carry car lines or that are routes convenient for general teaming, driving, or motoring.

It is clear that these will be streets that are not inviting to traffic. This may be either because of the special development which has been given to other thoroughfares, or because they themselves are characterized by some permanent physical handicap, such as indirection, heavy grades, or a break in continuity. Their traffic function, as regards the street plan of the

city and its suburbs, is only to harbor the little eddies left at the side by the mighty streams of travel which flow through main thoroughfares. Because they serve this purpose, they must be generally in close connection with major streets and traffic highways. If we fancy an ideal city plan in which various arterial streets radiate from a common business center, we shall expect to find the minor streets located between the radii.

In considering these minor residential streets, two peculiarities at once become clear. First, as they are not limited to any one residential section of the city, they do not exclusively belong to any one class of citizens. Necessarily, therefore, they, like the traffic thoroughfares, vary in character. There is, for instance, the shack-lined alley off a third class business street, and the private "Place" off a fashionable avenue, and each may be classed under the title "minor residence street." Second, and as a consequence of the foregoing consideration, it is obvious that they are very numerous and of much importance in the city's life. As far as numbers go, it usually is possible to class more streets under this term than under any other. An imposing proportion of the total number of the citzens dwells upon them, and the lives of these people are intimately affected by the character of the streets. The streets are minor, considered only in themselves and their street relations; they are not minor as regards their social value or their economic influence upon rents. Further, because their development is or should be determined so largely by purely local factors, it should be possible to connect them more nearly with rentals than other streets can be thus connected. When one deals with minor residential streets, one deals most closely with the homes of the citizens.

That these streets are distinct from traffic thoroughfares, however, cannot be emphasized too strongly. The avenues, the boulevards, the arterial highways and main roads may as often be too narrow, under present systems of planning, as these minor streets are prone to be too broad. A street plan problem, when reduced to its simplest terms, is duplex.

Simple distinctions of width, however, do not solve the problem. Retail business, which it is so natural to associate with traffic streets, abhors a vacuum. For this reason, when a town is small it sometimes happens that of two parallel streets, one made wide for business and the next one narrow for residence, business takes the narrower—e.g., Market and Chestnut Streets in the early days of Philadelphia. This may be due to excessiveness, partly in the width and partly in the prices for property, on the wide street. For that reason, the accurate location of these streets, that they may be the most convenient for traffic; and their development, in such manner that they may be the most inviting to it, are matters of exceeding importance.

CHAPTER II

THE STANDARDIZING OF STREETS

It has appeared that there are at least two very distinct kinds of streets, if we accept the simple functional classification; and that those which should serve one purpose are as likely to be too narrow as those which should serve the other are likely to be too broad. Setting the common excessive width of strictly residence streets over against the common excessive narrowness of main traffic thoroughfares, it will be no surprise to find, as we do, similar measurements for immense numbers of streets—irrespective of the different kinds of needs they have to meet. It becomes evident that there has been effort to discover a mean, and that except for the few streets that have some special significance this selected mean has been standardized. Standards, as we have seen, may be for three grades of street and yet may adapt them to only a single function.

While standardization of the width and arrangement of streets is a convenient, labor-saving method of regulating the subdivision of real estate, it cannot be held to show much foresight. If the action deserves credit for implying recognition of a need of regulation, it destroys this claim to credit by imposing a regulation that is arbitrary, unrelated to facts and hence in many cases illogical. To require that the gridiron street plan, which is possibly characteristic

of the nucleus of the town, shall "spread like an eruption over hill and valley, regardless of gradient, site or of strategic lines of communication, oblivious of monotony and blind to topographical opportunity,"* may be to blast the chance of suburban appropriateness and beauty. Again, to impose on the new streets themselves requirements which unfit them for the best performance of their function can represent no advance over leaving them unregulated, since under the latter condition an intelligent person might now and then fit them for their purpose. And to say that no streets shall have less than a certain minimum width of roadway, setting that minimum at a figure appropriate only for streets of a considerable traffic value; or to say that every street shall be intersected by a cross street at definitely named intervals, is to impose restrictions of exactly these kinds.

Most persons know from personal experience how much these things are done, but it may be well to illustrate by a couple of concrete examples.

In the city of Washington, which we like to think of as so admirably planned, there is a law setting fifty feet as the minimum width for any strictly minor street which may be opened in a block; while requiring that all new highways be not less than ninety feet in width. The severity, however, of the latter rule is mercifully ameliorated by the provision that if the dedicating parties will establish a building restriction line, in agreement with the required width, the street may be recorded as having a width of sixty feet. Even with this modification, however, it is interesting to contrast the requirements made of suburban Washington streets—of nearly all such streets, be it noted—

* An admirably descriptive phrase used by Arthur A. Shurtleff, in *Landscape Architecture*, January, 1911.

with the dimensions of thoroughfares which are famous for the amount of traffic they carry, the justification of the demand being its forehanded provision for possible future traffic. Sixty feet is as wide as Cheapside, London, and approximates the available width of Fifth Avenue, New York, before the recent setting back of stoops. Ninety feet is much wider than Piccadilly, Queen Victoria Street or Oxford Street, and is wider than Regent Street Quadrant, in London. It is only eight feet less than the Parisian boulevards or the Avenue de l'Opera, and is wider than are the busiest parts of Broadway, New York. It were trite to term such provisions, made regardless of all local conditions, extravagant.

In England an act requires that no street longer than 150 yards can be constructed without a cross street—not even where houses are few and may be expected to be always far apart. But in New York City, with its enormous traffic, many of the blocks are twice as long as that; in Montreal the average block is 750 feet on two of its sides; in Washington, streets are frequently 800 feet apart. Yet the law requires that if one is laying out a tract on which to house the poor at the lowest possible rent in Liverpool, one must increase the cost of the operation by building a street at intervals of every 450 feet.*

These illustrations of standardization seem extreme, but that is only because worse examples are not

* The question is not wholly one of traffic accommodation. Streets not only carry traffic, but their location determines block plans, and block plans determine lot lengths. The shallow lot, secured only by frequency of parallel streets, is exceedingly desirable where the poor are to be housed—as will appear further on. But a needless frequency of cross streets, or the frequency of parallel streets that through standardization are compelled to have a useless width, is thoroughly bad. That is the point as regards the present discussion.

quoted. Liverpool and Washington are certainly not the cities to be sought for particularly unintelligent enactments on the subject of street platting. Indeed, it is not the least significant fact in all this standardization that there are to be found a great variety of standards in different localities, even when economic, social and topographical conditions seem very similar. In other words, there is no pretence that a true standard has been found. The dimensions selected seem to have been determined upon in each place by accident, more or less, and to have persisted largely through inertia.

We shall consider elsewhere the cost involved in these attempts to find a street mean that can serve diverse ends. It is sufficient here to note simply the failure of the effort as respects even the two main divisions of streets—a failure so complete that it would be ridiculous if it did not exact sacrifices, social as well as economic, which make it pathetic. A quotation from J. S. Nettlefold's " Practical Housing " offers, in a terse and concrete English example, a hint of the nature of the sacrifice involved: " Our present regulations," he says, " stipulate that every new street must be of a certain minimum width, largely regardless of what traffic is likely to go along it. The sides of the streets must be curbed and channelled and the footpaths paved with flagstones in a most expensive manner. This entails a very heavy expenditure in estate development, which, on the average, is about equal to the value of the land that is going to be developed. The result of this heavy expenditure is that the landowner, in order to get a return on the capital invested, crowds just as many houses per acre on to his land as the by-laws will allow. That is, the model by-laws allow fifty-six houses to the acre, whereas,

from the hygienic point of view, there should not be more than twelve. At present, if a progressive landowner expresses his willingness to restrict the number of houses per acre to twelve, instead of fifty-six as allowed by the by-laws—provided the local authority will meet him in the cost of estate development by allowing him to make the roadways as wide as, and no wider than, is required for the traffic that will pass over them, although maintaining the present distances between the houses—he is told at once that the by-laws are prohibitive."

It should be said, with regard to this, that a provision of the recently enacted town-planning law partially corrects this condition. It now is possible, on occasion, for English local authorities, in order "to secure proper sanitary conditions, amenity and convenience," to relax or modify requirements, breaking away from the tradition that all streets should be of like width and like strength. But this is such a new enactment that as yet the conditions which render the permission serviceable have been rarely complied with. Consequently, Mr. Nettlefold's statement has lost little of its force. In any case, it stands as a serious rebuke to the argument for standardization. So, also, does the town-planning act's suggestion that, for purposes of separate treatment, roads may be recognized as (*a*) main arterial roads, (*b*) secondary roads, and (*c*) residential roads—that is, as traffic roads, of greater or less degree, or as residential.

In the main, three excuses are advanced in behalf of the standardization of streets, in the innumerable cities and towns where it is practiced. One is the method's convenience. It simplifies the initial problems of land sub-division, the surveying and recording, and it renders street extension almost automatic.

The objection to this is that it means the purchase of present ease at the cost of future trouble.

A second "justification" is, as we have said, that the method represents an effort to be forehanded in providing for future traffic. As to this, the situation is as follows: We have found in dearly bought experience that the streets in the cities of the past are too small for the traffic of the great towns of to-day, with their larger populations and vastly increased transportation needs. We have determined that the error shall not be repeated in the building of new towns or in additions to the old. As no walls of masonry now encompass our cities to cramp the streets, we say to ourselves there is all outdoors to grow in. Let us, therefore, plan on a big scale, making our streets generously broad. Accordingly, we have raised the percentage of area devoted to streets from the ten per cent which was frequent in mediaeval cities (in Havana, Cuba, the amount still is less than ten per cent of the whole) to the twenty-five and even forty per cent which is usual in the built up portions of modern cities. It was necessary, no doubt, to raise the proportion, and perhaps as much as we have raised it on the average. The fault lies only in the uniform, unthinking way in which the work has been done, in forgetfulness that walls of time and walls of cost still engirdle city-workers, and, like the old walls of masonry, exact toll in higher rents for all improvident use of land.

We need to recognize that there are some streets which never can be traffic highways, however broad they be—as streets that climb steep hills or terminate quickly, or skirt lines of bluffs.* We need, also, to

* An illustration, which is interesting because typical, may be cited from Los Angeles, Cal. There a law specifies that no public street

realize that, at worst, Broadways, Fleet Streets and Cheapsides are not born full-grown overnight. In ninety-nine cases out of the hundred it can be foreseen absolutely that given residence thoroughfares cannot become business streets within any reasonable period. Is it not absurd to charge the community through all the intervening years with the annual cost of a hundred needlessly wide streets because one of them might possibly, centuries hence, have a great deal larger traffic than to-day? And as to the one case, of which the future might not be accurately foreseen so long ahead, the growing traffic, the trend of business and of building, or the undertaking of a public work that is to revolutionize the community, would give the warning in time for it. If we are going to be so thoughtful in our city building, let us be thoughtful of fact and not of theories.

Let us observe, among other things, that the present tendency to develop districts, homogeneous in themselves but quite distinct from other districts, tends powerfully to the fixture of not only real estate values but of traffic values; and then that a street platting adapted to the district in which it is, will further discourage marked changes in its character. Is there any reason, indeed, why in the planning of cities the areas that are to serve special purposes—as those of

shall be less than forty feet wide. Recently owners of a certain tract in the hills, called Beverly Glen, offered to dedicate a sufficiently wide street through the canyon in the middle of the tract. But this left house lots on the hillsides which it was illegal to offer for sale until public highways had been set aside to reach them, on plats accepted by the Board of Supervisors and made matter of record. Such, however, was the character of the hillsides that it was out of the question to lay out public highways which the Board could legally accept. As this is written, there is pending the query whether the unreasonable standardizing law can be evaded by accepting "public trails"!—Condensed from a news note in *Municipal Journal and Engineer,* Feb. 8, 1911.

commerce, manufacturing and residence—should not be planned especially, even as we plan the different rooms of the house? The area—be it kitchen or entry in the house; business street or residence crescent in the city—is selected for its particular purpose because of appropriateness of character and location. In either instance, having been chosen for a given purpose and designed to fit it, the area's resulting inadequacy for other ends must tend to keep it in the use for which it was planned.

It may be said, of course, that there is danger that we will not plan with sufficient liberality. If the use of a certain area outgrow the space allotted to it, expansion may mean an absorption of area which was intended for other utilization. But speaking generally, this danger will at worst threaten only the margins of a district which, in all the rest, and larger, portion of its territory will be designed to meet in the best way possible the needs peculiar to it. Nor will this peril of the margins be truly menacing. In forehanded planning for special uses we naturally would be liberal.

The third excuse for giving to streets a width in excess of the traffic needs is that such action is wise because in residence districts, especially among humble homes, the width is useful for something else than mere traffic—as air and light and grass and flowers. But this is a costly way to provide these amenities. Would an architect justify the expense of putting additional staircases in a house because banister-rails are nice for boys to slide on? If there be front gardens, through requirement that houses be set back from the lines of narrow streets, we shall gain not only light, air, and vegetation, but social and personal advantages besides. Should there be felt the need for traffic

UNSYMPATHETIC PLAN OF A DOMESTIC STREET

This picture was taken and published, curiously enough, to advertise the attractiveness of a certain residential development.

forehandedness, the community could secure an easement over this front garden space; the desired amenities being meanwhile attributes of the home rather than of the street, and better so; while as to provision for shade trees, if the street be narrow the trees are better placed inside the walk-line than outside of it.

There is another kind of standardization than simply that of width. Not only, in the eagerness for methodically constructed cities, are there regulations fixing the width at so excessive a figure as to invite uniformity in all save exceptional cases, but there are enactments standardizing the development of streets. Thus, in some cities of the United States it is decreed that, irrespective of the width of streets, three-fifths of the breadth shall always be put into roadway, and one-fifth on each side into sidewalk. In European cities, where the proportions of the street are likely to be less generous than in the Western States of America, the division is often into thirds.

An example of standardization that is suggestive because it shows a little more than the usual thought, even suggesting a wish to create an intelligent adaptability, is to found in the Borough of the Bronx, New York. Here a general ordinance dealing with the arrangement of streets requires that all streets 60 feet wide shall have a 30-foot roadway; all streets 80 feet wide a 42-foot roadway; streets 100 feet wide a 60-foot roadway, etc. But this region is one of delightfully varied topography, illustrating within its considerable area almost every kind of suburban development; while the ordinance shows no regard for any characteristic of the street save that of width.

In the same city of New York we may find innumerable illustrations of the difference in needs of different kinds of streets, even when their width is the

same. We shall find business sections and residence sections with traffic requirements totally unlike. We shall find the business section subdivided many times, as into wholesale and retail districts, and these again subdivided, as into the "leather district," the "financial center," the "automobile row," etc. The residence sections in their turn are subdivided into high class and middle class and workingmen's districts. The tenement region makes a vast third section. Surely sidewalk and pavement requirements are not the same on all the streets of like width in these various districts. For example, one may find on a street in the wholesale district fifty great trucks and drays to a single pedestrian. On the tenement-lined streets of the congested East Side, or among tall office buildings, of which a single one contains the population of a good-sized village, there may be five hundred pedestrians to a single vehicle. Here the streams of people on the sidewalks flow into the "roadway" and sometimes choke it to such extent that one could hardly drive there if he would. But up on the avenue, where the roadway is uniform in width with that between the tenements and the skyscrapers, the river of traffic is mainly composed of motor cars and carriages, and such a mighty torrent is it that the hunted pedestrian can cross it only as the children of Israel crossed the Red Sea, a Moses in uniform holding back the water on either side. In yet another part of the city, the authorities found it advisable some months ago to close some streets to vehicular traffic between certain hours, because inconsequent childhood had appropriated the space for a needed playground.

Great as are these contrasts, the problem is reduced in this statement to its simplest terms. No account is taken of the difference between streets that have

and have not car-tracks, though in other respects they be alike; no account of grades, and length, of direction with respect to the tidal flow of traffic, of terminals, cross-streams, and other matters which affect the efficiency of streets. And even all these conditions would not illustrate all the folly of a standardizing system. There are other streets in the city, scores and hundreds, on which, though they are equal in width with thoroughfares as crowded as those described, there will be, perhaps, two vehicles and half-a-dozen pedestrians in the hour. Here the pathos lies in the waste involved.

This waste, it may be well to observe, is not always or necessarily in the excessive use of land. When a highway is too narrow, and this condition is as familiar as is too great breadth of street, there is congestion that results in a waste of time and waste of energy which are as clearly reducible to terms of money as is waste of land.

Lastly, there is the standardization of direction. It requires that adherence to a fixed plan, which is careless of the cost of cutting and filling, which is regardless of impossible grades, inconsiderate of historic interest, is blind to beauty. It would keep all streets to the Plan, indifferent to the purpose they have to serve. Even on a virgin plain this is not justifiable. Take the one matter of orientation. We shall find it desirable that residence streets have such direction that there will be no day of the year when the sun may not reach some windows of the houses. But on business streets this is far less important—shops, indeed, preferring the shady side.

But let us return to the minor residence streets. We have found the failure of street standardization to meet street needs, and the consequent extravagance of

TAXING THE PRESENT FOR AN IMPROBABLE FUTURE

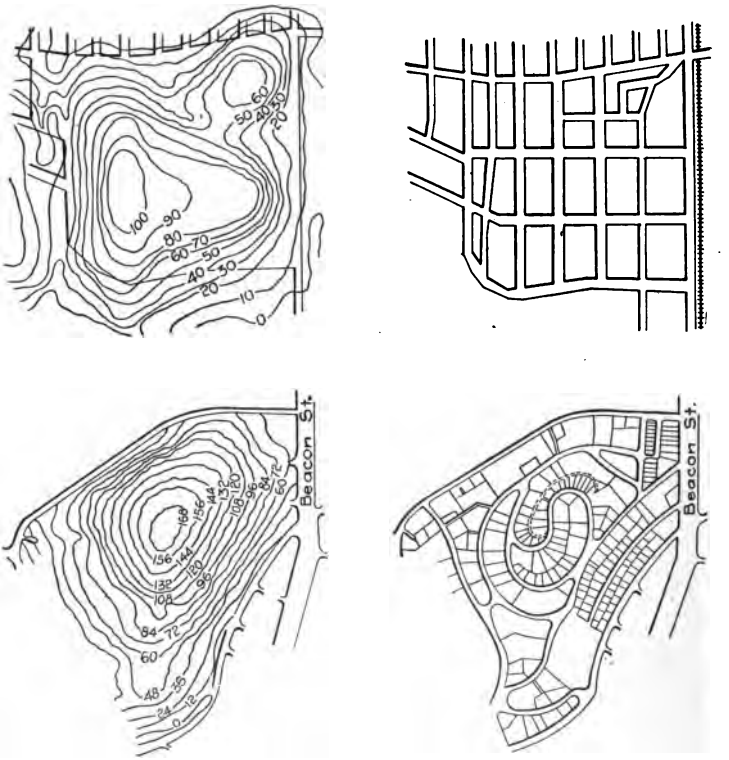
It is unlikely that this necessarily minor street of a new real estate development, now stopped by a railroad and residence, will be ever extended beyond its present length; or if extended become a highway. But it is given a roadway wide enough to accommodate the vehicular traffic of a metropolitan street.

By courtesy of the City Parks Ass'n., Philadelphia

THE COST OF RIGIDITY OF PLAN

The extension of a Philadelphia street. In this case the destruction was not necessary.

that method of platting, to be largely due to the fact that a city's streets and sections are not all alike in their requirements. How could they be, since not alike



By courtesy of Metropolitan Improvements Commission [Boston]

STREETS ADJUSTED TO CONTOURS

The street development of Aspinwall Hill, Brookline, Mass., as shown in the lower diagrams, offers delightful contrast to that on the hill at Wollaston, shown above.

in their conditions! Some may claim that it would be better for a town if it were not subdivided into districts of distinct character—at least in its residence section. They may say, therefore, that a method of

street platting which fails to take notice of a tendency toward segregation, and which certainly does nothing to fix or emphasize such separation, is a good thing. However much the argument may appeal to a republican, the real condition is so universal as to seem to compel recognition. The separation of home sections into districts of various character is as evident in Chicago as it is in London. It is a result of the operation of social laws—nay, of laws embracing more than human society. It is the attraction of like for like. Further, it is the application to cities of that law of evolution described as the specializing or differentiation of function. Whether we like it or not, we cannot in fairness fail to note its operation in cities, not only now, but in the past—this is interestingly shown by the names of ancient streets—or fail to realize that the process must continue and can hardly grow less marked.

Jane Addams, than whom no social worker has broader outlook, says in one of her books: "The city grows more complex, more varied in resources and more highly organized, and is, therefore, in greater need of a more diffused and local anatomy." She says this simply and incidentally, to prove another point, as if everyone admitted it. Yet the statement puts tersely the great lesson which we have yet to learn in the platting of streets.

CHAPTER III

STREET WIDTH AND HOUSING

It early appeared that streets which are properly of residential character, and of which traffic makes only minor requirements, are not confined to any single quarter of the city, and that the persons who dwell upon them are not of one class alone. The occupants of the houses on any particular one of these streets, or any particular unit of street, are likely indeed to have approximately the same general position in life, but between two streets, or between two well defined divisions of a street, there may be the diameter of the whole social structure. It was asserted also that the relation existing between the development accorded to these streets and the lives of the people living upon them is exceptionally close and intimate.

If, then, the development of minor residence streets be standardized, so that they all tend to uniformity, and the lives of the residents are not, and cannot be, reduced to a fixed social mean, there must result a series of misfits, of which the outcome can be only prodigality, social inconvenience, and a general maladjustment to real conditions. This will affect the different classes of residents with different degrees of relative seriousness, but none will escape its influence. The easiest measure of the cost of such maladjustment is offered by the effect upon rents, and that effect

carries suggestion of the numerous far-reaching tendencies which develop from it.

Alderman W. Thompson, chairman of the National Housing Reform Council of England, in his valuable compilation, "Housing Up to Date," states that under modern conditions of subdivision the cost of roads, sewers, etc., reaches in some cases as high as £9 per room or £45 per cottage, and that it averages £9 per cottage. This calculation is based on statistics covering thousands of cottage dwellings, and since the word "cottage" means in this connection houses built in continuous rows—that is, dwellings that occupy with their grounds a minimum street frontage—it reveals the effect on rents for even the cheapest homes. As to the more costly villa type of dwellings, the same authority notes that the English by-law requiring a paved or macadamized road surface of about 40 feet, has made the cost of thoroughfares, in newly developed estates on the outskirts of towns, from £200 to £500 per acre—*"or more than the land itself."*

John S. Nettlefold, in his "Slum Reform and Town Planning," calculates that the interest on the expenditure for street work "comes to one shilling or more per week on a house rented for six shillings, if the number of houses is restricted to fifteen per acre." One must read that statement twice to get its full significance, and must realize that the suggested restriction is not a low one. At Bournville, the houses are restricted to eleven to the acre, and at Hampstead Garden Suburb they average less than eight, with twelve the maximum. Twelve to the acre has been made the standard in English housing exhibitions. Yet at fifteen to the acre, one-sixth or more is added to the weekly rent by the English by-law requirement of forty-foot streets.

Raymond Unwin puts the unreasonableness of the requirement in this striking way: "A mansion such as Chatsworth or Blenheim will be adequately served by a simple carriage drive from 13 to 20 feet wide. The population of such a building will be larger than that of a row or group of cottages, and the amount of wheel traffic to and from it many times as great; yet for the cottage road asphalt or concrete paved footpaths, granite curbs and channel, and granite macadamized surface, the whole from 40 to 50 feet wide, and costing, with the sewers, etc., from £5 to £8 a lineal yard, are required by the local authority, under our existing by-law."

The burden of all this cost, to which is to be further added the value of the land thus withdrawn from productive use, is borne by the occupants of the district, whether they be tenants or owners.*

This was brought out with somewhat more detail at the Seventh Congrès International des Habitations à bon Marché, when a report named the following as

* More recently, Mr. Unwin has worked out, by means of tables giving the cost of estate development per house for various numbers of houses per acre, an interesting calculation as to the profit in making certain concessions with respect to roads. He imagines, for instance, a tract of twenty acres, valued at £300 an acre, with ten houses to the acre, and assumes the cost of fifty-foot roads to be £7, 10s per lineal yard, the cost of thirty-six-foot roads to be £5, 10s per lineal yard, and the cost of twenty-foot roads to be £3 per lineal yard. He finds that if, instead of constructing the ordinary by-law roads, the houses being so few, there were made one fifty-foot road around the twenty acres, a thirty-six-foot residential road across the area, and then, instead of another thirty-six foot road through the length of the plat, two small drives of twenty feet each, the cost per house for land and roads would be reduced from £71 to £62 6s, assuming the land-cost as remaining fixed in either case. The concession, that is to say, makes the same difference to the landlord as if he had been allowed to put one hundred and forty more houses on the twenty acres!

the factors that determine rent, as far as the landlord's side of the question is concerned:

1. Interest on Capital outlay,
   - (*a*) For site.
   - (*b*) For roads, sewers, etc.
   - (*c*) For building.
2. Maintenance expenses,
   - (*a*) For repairs—"a fairly constant factor, averaging about one-tenth of the gross rent."
   - (*b*) For management and sundries, "a fairly constant factor, averaging about one twenty-fifth of the gross rent."
   - (*c*) For taxes and insurance.

Of these factors it will be observed that 1, (*a*) and (*b*), and 2, (*c*), are dependent very largely on the street platting; and since 2, (*a*) and (*b*), are described as "fairly constant," it may be said that much of the variation in rents in any section is determined, from the landlord's standpoint, by the cost of the building and these three community-decreed factors. As a tenant in choosing his house, theoretically chooses the best he can afford, it can be argued that the rent factors which are imposed by the community in its official capacity, without his permission, really go far toward fixing the scale of his living. And this is clearly true even after admitting that the normal tax rate has of itself, as economists now quite generally claim, little effect on rents.* The importance of the

* It is quite conceivable that the method of taxation may affect rents more directly than does the rate of taxation. Indeed, the adherents of the single tax system, who, removing the tax from improve-

subject thus becomes plain. If the present familiar method of standardization is unduly extravagant, it should not be permitted to persist simply through inertia and because it saves trouble in surveying and thinking.

It is significant, as was noted, that the new act in England recognizes the condition, by permitting English local authorities, in order "to secure proper sanitary conditions, amenity, and convenience," to relax or modify former requirements, breaking away from the tradition that all streets should be of like width and like strength. Furthermore, the act itself recognizes, as we have seen, three distinct grades of roads—main arterial, secondary and residential.

Further interesting testimony is given by the Germans, who, in the earlier days of deliberate town planning, were wont to construct very broad streets when developing outlying areas. As long ago, however, as 1892 the minister of finance said, in presenting to the Prussian House of Representatives a bill relative to town planning: "Everywhere equally wide streets have been made, whether they are in a district of heavy traffic, or whether they are in the less busy parts of the town in which, naturally, workmen seek a home. . . . In preparing a rational town building

ments, would put it only on the land, assert that such a method must tend, by encouraging building, to reduce rents. With the whole tax placed on the land, it does not pay to allow valuable land—which is to say land immediately needed for use—to remain out of use. From a town planning standpoint, it is interesting to note, now, the further claim that the city would consequently develop in a more orderly and consistent manner. Large areas of property, allowed to lie vacant because of low taxes, will no longer separate its outer ring into scattered communities—a course that adds much to the cost of policing, lighting, sewering, and paving. Again, those who believe in an "unearned increment" tax on land, a system in operation in Germany, make a similar claim for their method.

plan our task will be to avoid these faults and to take as our aim that narrow as well as wide streets shall be laid out, which will cost less to make."

A GERMAN TYPE OF HANDSOME STREET

High tenement block dwellings may be a direct result of wide roads; and a handsome street that is lined with them is undeserving of admiration from the standpoint of social welfare.

More recently, in the discussion of the few pages from this volume which were read at the London Town Planning Conference of 1910, Dr. Hegemann of Berlin traced a relation of cause and effect between the wide streets and the tenements with which those streets are

lined in the more remote portions of the German capital; while Thomas Adams, of the town planning department of the Local Government Board, of England, testified that after investigating conditions in Germany and Sweden, he had to come to the conclusion that the system of high tenement block dwellings was as much the result of wide roads, as wide roads had been the result of the tenement system. The one, he said, was complementary to the other. It was necessary that the owner extract from each yard of his frontage enough rent to pay its share of the costly street.

At the same conference Dr. Eberstadt, in a formal paper, told how English visitors are driven about the German cities and shown imposingly broad streets "with a display of asphalt that would empty half the pits of Italy, and a show of granite sufficient to level down the mountains of Sweden, lined all along with huge five or six story tenement barracks." Some English visitors, he added, were full of admiration for this sort of thing; but he testified that the Germans, who have had the opportunity to study it at close range, "now wish to do away with it, as far as may be practicable, and to make their aim the English home, the cottage, the individual house."*

That in England and America broad streets, in areas where the poor are congregated, are not—save in New York—as commonly lined with tall tenement barracks as in Germany, does not mean that the same economic law is not in operation, or that it operates less unfortunately. A social repugnance to the big tenement, except as a last necessity, has led to the

* It is fair to say that the plans prepared in the recent (1909) Greater Berlin city planning competition supplement very wide traffic roads, designed to reach far into the country, with narrow non-traffic roads, intended for residence.

construction of small houses (often more crowded per room, and less sanitary, than is the tenement block), and then, to squeeze from the land the higher rent necessitated by the cost of frontage on an expensive street, has induced the construction of another house, sometimes a small tenement, on the rear of the lot. These houses, hidden by the structures in front, are uncontrolled by ordinary police inspection and unaffected by public observation and criticism. They become such breeding places of disease and vice that at last, in city after city, it becomes necessary to forbid their erection. In Washington, where they were perhaps no worse than in other cities, the official Report of The President's Homes Commission described them as "discreditable to the city and injurious to the sanitary interests of its inhabitants."

Of great weight, also, should be the reflection—to which there will be other reference—that if there could be cheaper minor streets for residence purposes, less capital would be required in the development of estates, less land tied up for want of the capital, and more land thrown open for building.

Finally, there are other losses than those which are so directly measurable in rents. Mr. Olmsted has pointed out that "the tendency of the standardizing plan to encourage the distribution of a certain amount of through traffic upon nearly every street in each district, is a distinct injury both to the residential streets, where the abutters wish to escape from the disturbance of traffic, and to the commercial streets, where the abutters wish to have the maximum amount of traffic pass their places of business." In other words, the abutters are taxed for a system which is to their disadvantage.

It was early claimed that a wide street, furnishing

abundance of light and air, would be healthier to live upon. But this does not follow if the added breadth is devoted only to pavement. Such a street is provocative of much dust, which is never healthy; and in enforcing intensive land occupation, either by covering much of the land with buildings, or by high building, it creates conditions that are by no means hygienic.

SACRIFICING COMFORT AND BEAUTY FOR WIDTH

This is a street in a residential suburb of New York. Its length is limited to two or three blocks owing to natural conditions, and there was no need to sacrifice beauty and comfort in order to make it as wide as Broadway.

Briefly stated, if one's purpose in platting a wide street is simply to secure open space, one would do much better not to provide that space in its most disagreeable and unhealthy form—which is the street.

Again, an excessive width on minor residence streets robs the people of the gardens they might otherwise have. For example, in Bedford Park, London, the first "Garden" suburb in England, the houses on Gainsborough Road are placed about five feet back

from the lot line. Hedges are used in front of most of the dwellings, and these naturally occupy so much of the space as to render what is left nearly worthless for garden purposes. In fact, generally it is paved. But the street, which is only one block long and therefore not a thoroughfare—through which indeed the writer's carriage was perhaps the only one that passed the day he visited it—is, as the law directed, forty

EXTRA SPACE FOR UNUSED ROAD LEAVES LITTLE SPACE FOR MUCH USED GARDEN—AN EXAMPLE FROM EUROPE

feet wide. How much better it would be for the occupants of these houses, people who may be supposed to have moved into Bedford Park in order to get garden space, if it had been possible to reduce this one block street to a width of 24 feet, giving to the people on each side eight feet more of garden in front of their homes!

That the connection between street widths and good housing is of vital concern to the city surely requires no argument. We may not think it part of

the town's business to build decent dwellings for its poorer citizens—though in Europe the clearance of slum areas and the rehousing of the people thus displaced has been accepted as a very important, and also very costly, part of municipal activity. But at least we shall recognize that the city should do what can be done, by the wise building of streets, to encourage good housing. In its purpose to make citizens, rather than simply to add to the total of street area, it will avoid, as far as it may, whatever fosters the "warehousing" of men, women, and children in tenement barracks; it will discriminate between shelter and "home," seeing in the latter more than simply the four walls of a dwelling; it will realize that a policy which provokes unwholesome methods of living, through compelling a too intensive use of the land, drains the municipal treasury in other and more serious ways than simply for the cost of making and maintaining needlessly broad streets. The maintenance of health and morality among poor people who have to live on lots of high priced frontage, is a more expensive business than is the maintenance of the street. And failure here is a more serious matter to the community. As Dr. Charles W. Eliot said in a recent address, "I am persuaded that the public ought not to limit itself to economic considerations in laying out parks and cities. The increase of human walfare, including its happiness, should be the real consideration." But wisely to consider that may also be a true economy.

CHAPTER IV

STREET WIDTH AND LAND VALUES

It is not always true that the tenant's gain is the owner's loss. If the narrowing of minor residence streets tends to reduce rents, it does not follow that it tends to reduce property values. The latter are, for the most part—as regards property of this character—the capitalization of net income, expected if not realized. A reduction in rents which results from reduction in carrying charges may leave net income unaffected.

It is to be observed also that, in this discussion at least, we need be no more concerned for the tenant than for the lot owner. It is not for the city planner to favor the former at the expense of the latter. In fact, the ideal which is to be kept in mind as a desirable goal is a condition in which each citizen would own his own home, and the tenant become a relatively negligible quantity among a multitude of lot owners.

But if the proposed change in methods of street designing does not affect property values adversely,* it does not follow that they are not affected. It probably would exert a marked influence upon real estate in various ways.

In the first place, it would tend to create stability in values. This effect would be seen alike on the main

* It is significant that under the English town-planning act, damages are not allowed for a restriction in the number of houses per acre.

thoroughfares and on the minor streets. The concentration of through travel upon certain streets would raise the value of the frontage on those streets for commercial purposes; while the assurance that intermediate streets would not be encroached upon for business purposes would not only settle definitely the business character of the chosen main highways, but would have a beneficial effect upon property on the intermediate streets. The reason for this is the certainty which would be thus gained that they would be free from the danger of invasion by elements inconsistent, and out of harmony, with their present use. The more certain, it has been well said, a man can feel that the character of any given street is fixed, the more he is willing to pay for the privilege of having a lot on that street if it is the kind of street he wants. He justifies this willingness from an economic standpoint by the argument that the property, for the use for which he desires it, will not decline in value.

Another effect of a more rational method of street platting would be the opening of additional tracts for building purposes. This effect was touched upon in the last chapter, where it was pointed out that the requirement of less capital to develop an estate meant the development of more estates. From the standpoint of real estate values this means the intensive productive utilization of more land. It means that fewer persons owning property on the outskirts of cities need be "land poor." It would tend to produce a greater equalization of values between adjoining properties.

Over against the possibly depressing effect upon values, which would be anticipated from a greater supply of available building lots, is to be put the increase in demand. This will certainly come if rents

are lowered, and may be expected, in any case, to follow an enhancement in the attractiveness of small streets. It must be clear that streets which follow more nearly the topography, which make use of every natural advantage, which are narrow, grass bordered, quiet ways rather than broad and dusty highways that are hot in summer and cold in winter, would call men from the city streets with an even greater appeal than suburban tracts now call. In the announcement, issued by the Russell Sage Foundation, of Forest Hills Gardens—the Garden City it is building on Long Island—the following sentence, significant from this point of view, was prepared by the landscape architect: "Probably one of the most notable characteristics of Forest Hills Gardens will be the cosy domestic character of these local streets, where the monotony of endless straight, wind-swept thoroughfares, which are the New York conception of streets, will give place to short, quiet, self-contained and garden-like neighborhoods, each having distinctive character."

Though a good deal has been said about the cost of making needlessly wide streets, a factor which has not less influence upon rents and values is the cost of maintaining such thoroughfares once they are built. The man who held property on a small street would make a great saving in this respect. His saving would represent not only the economy of having to provide for the depreciation of a smaller area of street, but it would be the result of a much less rapid rate of deterioration. This is because there would be nothing but local travel to wear out the street. The present property holder on a typical suburban street is very much in the position of a man required to cover his front sidewalk with a brussels carpet which each person who walks past his house does something to

wear out. As everything is done to invite people to go through the street, and as nowadays a great many play-loving persons are riding their little velocipedes up and down—in other words automobiles—the carpet wears out very fast. The man has not awakened yet to the injustice of the demand that he provide the carpet where he does not want one, and then invite people, who are only a nuisance to him, to use it. Under the saner method of street platting, his carpet would be in his front hall. It would not wear out so fast, because no one would use it but his own household, his nearest neighbors, and their visitors. He would not grudge the wear given to it in that way, and he would find that a cheaper grade of carpet, costing less in the first place, would last as long as the body brussels laid on the front walk. For these minor residential streets, inviting no through travel, would be as private entrance ways to the few houses gathered upon them.

It may be said that those who own property on the main traffic highways would be pretty hard hit by construction and maintenance charges, if all through travel were concentrated upon their streets. This is true, but there are three answers to the objection: In the first place, their property would at once gain speculative value. It would have the commercial possibilities which are to be denied to the minor streets, and which pay such high returns. In the second place, it would not be unfair, wherever it is demanded that wide streets be put through a residential estate for the convenience of communication between districts lying on either side of it, to require that the general body of tax-payers should pay the cost of street works in excess of what might reasonably be held to make for the convenience of the frontage and for the increase

of its speculative value. Third, it is probable that, taking the city or even the neighborhood as a whole, the deterioration of pavement would be much less than under the present system. There would be a smaller street area to take care of, and some pavements, such as asphalt, deteriorate less rapidly if they carry a fairly heavy and constant stream of travel. At any rate, by concentrating the bulk of the traffic on a relatively small number of selected streets, these could be especially prepared for it, and given a width and style of pavement calculated to handle the business with the least delay and the smallest cost for operation and maintenance. Then each purely local street could be developed in the way that would best suit the needs, the means, and the taste of the people it is designed to serve.

A final consideration with reference to real estate values is, that only such a system of street designing as here proposed can make just and reasonable—and that is to say, can make possible—a radical limitation in the number of houses which may be constructed to the acre. To impose a limit is of obvious social advantage. It secures to the householder sufficient light and air and domestic independence—to say nothing of other gains. It is also of economic advantage. While, at first thought, one might think that an increase in the number of houses on a given area of land would decrease rents, the actual result in the long run is the reverse of this. Opportunity to overcrowd land raises its price, and rents, of course, bear relation to the capital invested. Consequently "land sweating" does not lower house rents, when we measure rents by their purchasing power.

If, then, it be desired to limit the number of houses that may be constructed to an acre, the city must be

fair to the landowner. If, for instance, it is going to say to him that he cannot construct on his tract more than fifteen houses to the acre, it must say to him that he will not have to pay, for the development and maintenance of the streets in his tract, any such sum that thirty houses to an acre would be necessary to give him an adequate return on the investment. The one act requires the other. Conversely, if the owner is to be relieved of the cost of constructing wide streets, he must agree to a restriction of the land's human occupancy—by limiting the height of his houses and their number per acre—to an aggregate giving such traffic as the street can care for. If, that is to say, adjustment of street width to street need is required, to make reasonable the placing of a desirable restriction on land development, such adjustment carries with it an obligation on the part of the owner to consent to the restriction.

It is clear, under these conditions, that the city, when it imposes a limit on the number of houses which can be erected in a given area, does place an approximate limit on the amount of traffic for which provision need be made by the local streets of that area. The necessity will no longer exist to require that there be adherence to rigid specifications designed to take care of a traffic which may increase with unchecked rapidity. It does actually become possible at last to adjust the street's development to the property's development. But when no limit is set to the latter, as in unrestricted areas, the standard for the street work must be set by the dreams of the most optimistic promoter. It will be correspondingly high, and correspondingly forgetful of the common good.

CHAPTER V

MAIN TRAFFIC STREETS

THE primary purpose of a street is to afford means of communication, that is, of transit. People might, conceivably, live in a trackless forest, but the moment they began to pass from shelter to shelter, or to carry food and firewood back and forth, that moment a path would be commenced—a street would have begun.

As means of transit is an absolutely essential product of the town's activity, so is it a factor indispensable to the community's progress. Largely, also, upon the degree of transportation facility depends the cost of living. The influence which a section of street in front of a dwelling exerts upon the rental that must be charged for that dwelling, is not, therefore, all summed up in the proportions of the section of street considered by itself. The relation of those proportions to the transportation facilities of the neighborhood are a vital factor in the determination of the rental that can be paid. In the designing, therefore, of a city's streets, no more important test is to be applied than that of the adequacy of the proposed arrangement for the transportation needs of the area.

It is in deference to the importance of this test that we have so generally widened the public ways of our cities and towns. We have seen urban transportation growing enormously, both in volume and in the means by which it is carried on. We have seen the narrow streets of the towns of long ago choked with traffic. Consequently, in building new cities and in adding to

the old, we have created broad thoroughfares in recognition of the fact that, whatever the cost, we must make it possible for the traffic to move. As civic engineers, we have witnessed a flood that filled old channels to overflowing, and we have taken the primitive step in flood control of widening the channels. Then, following further the example of the hydraulic engineers, we have both straightened lines and from the individual street have removed those projections or irregularities which might retard the progress of the current. All of this action, in so far as it refers to traffic highways, has been wise and natural.

The traffic stream for which we must provide is not simply, however, a matter of growing volume. It is increasingly complex in composition. We must recall that in the early days urban traffic was of limited tonnage capacity and of slow movement. Traffic methods then were relatively few. Almost the only movement was on foot or on horseback. The social activity of the towns was concentrated in a few open spaces, such as the market place and the squares in front of the churches, rather than diffused through the city streets. Aside from a few main thoroughfares, there were, in towns of that period, only narrow passage ways between the houses. Inigo Triggs notes that in even the largest mediaeval towns the principal streets were not as a rule more than twenty-four feet broad, or occasionally thirty feet; that lanes were not over eighteen feet; and that alleys were generally six feet. In small towns dimensions were even less than these; and there was seldom any differentiation of surface for the purpose of separating pedestrians from pack animals. Yet those streets served fairly well the traffic which made use of them.

To return to the hydraulic simile, the traffic prob-

lem of those times could be likened to a very sluggish water movement, such as can be accommodated easily by broad ponds, a few narrow channels, and a network of connecting slits. This, roughly, was the street plan

Original taken by G. Reinecke, Hannover

POTTHOF

Street typical of a mediaeval town—when the street plan consisted of a few broad spaces, united by "narrow channels and a network of connecting slits."

of the old cities. Conditions of modern traffic have substituted for those conditions a raging torrent, mighty in volume, swift in movement, irregular in flow, and carrying the flotsam and jetsam of present day commerce. It has been necessary to make a

division of streets into wheelways and footways, and on very many of them to provide tracks for mechanical locomotion. The street is no longer a path. It is filled with a life and motion that must attract even the idler and loafer. The ordinary movement of traffic upon it makes such a pageant that it is often necessary to provide space for spectators also. And with it all there is such danger to life and limb, and such nerve racking tumult, that we must provide for interludes, making it possible for spectators and actors to go into quiet homes on quiet streets, where the din of traffic will not disturb their sleep, and the frail and the sick and the child may live in safety.

The whole problem of street adjustment has thus become immensely enlarged and complicated. It is no longer sufficient simply to widen streets and untangle their old network; nor, on the other hand, is it enough, in the extension of cities, to plat simply a regular system of traffic canals, long, straight, and monotonous, all alike in dimensions and character. We must form main traffic channels that in location and arrangement shall be so nearly ideal that traffic will naturally concentrate upon them, to the end that the streets which we do not design for traffic highways shall not be unduly used by traffic. From whatever point of view we approach the matter, there appears the need of two main divisions in the street system. As in selling clothes, the manufacturer does not make only one size of hat and coat and induce all men to wear it, so in building streets, we should provide for the fat traffic and for the lean traffic, and follow the example of the clothier who keeps the fat man out of the lean man's garments by designing, especially for his use, clothes that are becoming and comfortable.

The question of street transportation is many

sided and complex. The rapid transit phase of it alone presents problems that have filled many books. The New York Committee on Congestion of Population has stated in a pamphlet that "rapid transit is not chiefly a financial problem; it is a social problem. It is a question not of dollars, but of human lives." But in limiting our discussion to a consideration of street widths as these are affected by transportation, we can pass over some of the more technical questions which press for solution with regard to the provision of mechanical means of locomotion. Such questions as the extension and financing of suburban lines, of the relation of land values to transit facilities—how "the trams help the suburbs and the suburbs help the trams;" of interurban terminals, of the relative advantage of bringing trunk railroads into single terminal stations or of providing for their trains a circulatory movement; of fare zones, rush hour traffic, of workingmen's tickets; of the disproportionate growth of travel as compared to the growth of population, and the freight terminal problem—all these and kindred questions, though they be intimately bound up with the extension of cities, need not here concern us. We have problems enough in providing streets adequate for the varying surface traffic which would make use of them.

The first thing to recognize is that the problem with which we have to deal is a community problem. Some years ago, when the Royal Commission on London Traffic brought in one of its reports,* it stated that it found that the leading cause of the city's congestion was the absence of a central authority, charged with the supervision of the traffic arrangements of London as a whole. It noted that railways had been

* Volume VII, 1905.

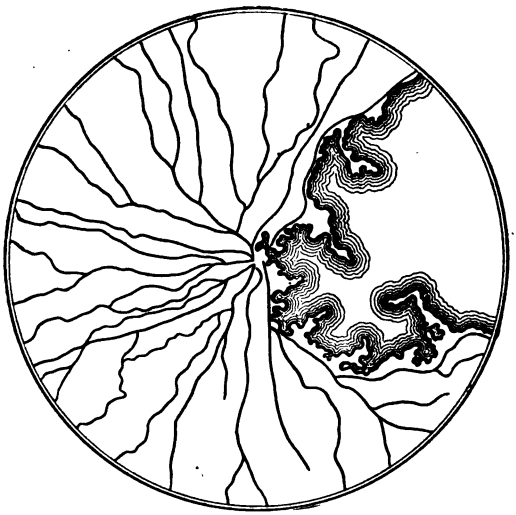
built, new streets opened out, and tramways laid down at local instance, to meet merely sectional requirements, and without regard either to the needs of the rest of the community or to the pressing claims of posterity. This condition which is at fault in London is general among cities. It obviously is so much better and more reasonable that new streets which are destined to be main lines of communication should be planned, not by the owner of the land in accordance with his conception of his own interests, but, having due regard for him, by the town, in accordance with the interest and needs of the whole population, that the matter requires no argument here. In German cities, in Belgian, in some Swiss, in Sweden, and in England, under the present town-planning law, such action is now taken.

It is true, as Mr. Marsh* has indicated, that the use to which land is to be put, and the intensiveness of its development, are factors "to be determined, logically, before any radical plan for transit can be developed." But radical plans need not here concern us. We shall assume the advisability of providing space for surface car tracks on all main highways. More highly developed means of transit would not, probably, require street provision.

It is well to observe certain principles that, for the proper provision of transportation facilities, may properly guide in platting the new areas, when once we have taken the community point of view. These tracts, if sufficiently large to permit anything like comprehensive planning, are likely to be traversed by some existing highways. It may be assumed that there was and is good reason for such roads. Once in a while their grades may be excessive, but generally it

*"An Introduction to City Planning," by Benjamin C. Marsh.

is probable that their alignment was sacrificed for easy grades at the time when they were laid out. In the United States, at least, that was likely to be a time when improved country roads were almost unknown, and heavily ladened vehicles were obliged to avoid excessive grades. These existing country roads, even when rectangular in general arrangement, have prob-



By courtesy of the Metropolitan Improvements Commission, [Boston]

HIGHWAYS LEADING INTO BOSTON

Note their naturally radial character and how they fork as they get further from the center.

ably a radial relation to the city nucleus, and may well be taken to form the basis of the extension of the city street system. As existing and natural traffic channels, we may expect streets developed from country roads to remain important traffic thoroughfares. As a first step, then, we must widen and straighten these principal channels, as hydraulic engineers would do under the like conditions.

In street building, however, "straightening" should not be understood always to mean rectilinear and parallel margins. An occasional extra widening, the break of a small open space at one side, a concavity of street façade in abutting structures, which makes space for cab stands, for kiosks, or for a group of trees, may add greatly to the charm of the street, while heightening rather than lessening its traffic value. Again, that slight departure from absolutely straight lines which makes negligible addition to street length may add very much to street beauty. It is their waving line that is responsible, in large measure, for the charm of some old-world traffic thoroughfares, such as The High in Oxford, the Grand Canal in Venice and the Lung Arno in Florence.* Buildings are seen at advantageous angles of perspective and there is a varying play of light and shade. But the curves must be long. The sinuosity which looks well on paper is very likely to seem wiggletty when on the ground, and the only test is that the street shall please as one passes along it. To do this, it must have no studied effect, must give no hint of affectation. Hence it were absurd to attempt to lay down a general rule.

Nor, indeed, should all arterial streets have waving lines. There is a certain grandeur—the grandeur, some one has said, which was imperial Rome's—in the straight line for a street. When the scale of construction is very large, there is a masterful firmness in rigidity of street line which is more satisfying than flexibility could be.

So, by straightness, or very slight and gently made deviations from straightness, the main highway will

* America is not entirely without examples of this, especially among the older cities. Observe, for instance, the gently waving line of Main Street, in Springfield, Mass.

be fitted to expedite its traffic to destination. But this will not in itself suffice. As open country is transformed into a populated area, more is needed than the widening and "straightening" of original channels to care for the swelling streams of traffic. Accordingly we must lay out additional highways, also of generally radial character as respects the center, interspersing them, as we foresee will be necessary, between the existing roads.*

G. H. Knibbs, F.R.A.S., has noted that it is with a radial street system that "the greatest area is reached with the least length of street." He adds, "The greatest distance to be traversed in passing from any one point to another, as compared with the direct distance between the points, is approximately a minimum when the angles between the diverging streets are about 60°—that is, when the radial system is hexagonal." As suggested, however, by the footnote, no fixed rule has been followed in planning actual radial streets. Even when the center of convergence is a point rather than a considerable area, there is much diversity in practice, the most formal plans being somewhat affected by existing conditions of site, etc. Thus, the Arc de Triomphe in Paris has fourteen converging avenues; while the Place de la Bastille in Paris and the Capitol in Washington have eleven. As Professor Eberstadt has said, "There is nothing absolute in town building"—nor should there be.

If of radial character, our main highways will

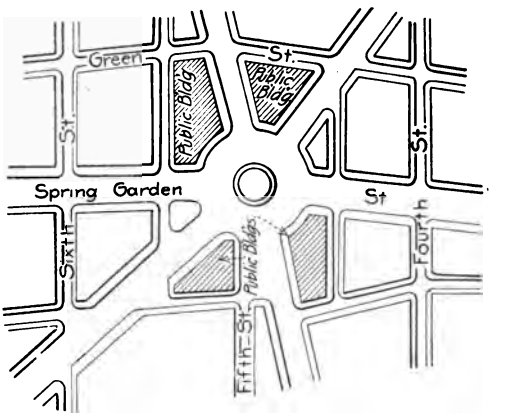
* "In Berlin fourteen great roads connected by a circle radiate from the seat of this military government and lend themselves to effective and economical expansion of the city on all sides. In London there are three principal civic centers: Trafalgar Square, the Bank, and the Elephant and Castle. From the triangle thus bounded sixteen radial routes diverge."—Robert S. Peabody, in "A Holiday Study of Cities and Ports."

become further and further apart as one travels outward from the center. Doubtless we shall find it advisable, therefore, to branch them occasionally. If these branches should come at intervals of approximately three-quarters of a mile, and the branching point should be dignified by some striking architectural accent, the aspect of the streets would be vastly improved. But the three-quarter mile interval is not a fixed distance. Much must depend, even as far as looks are concerned, on the street's grade, width, and general treatment; and looks can be very seldom indeed the sole determining factor. Yet it is worth while in our platting not to forget that a comparatively short street—or one containing a focal point clearly visible throughout its length—is far preferable aesthetically to a long one, and is much less wearisome to the traveler.

Between the arms of the main framework, thus constructed, it will be necessary to provide cross connections, which in their turn will become main channels for the cross, or circumferential, traffic. This traffic is not only of sufficient importance in itself to deserve such recognition, but provision for it will relieve the main radial thoroughfares. Otherwise these furnish for cross traffic—especially for that which uses street cars—a very roundabout course, into the center and out again, that adds to their own natural congestion and wastes energy and time. These circumferential streets will tend, in their turn, to be broad and nearly straight, between the radial or parallel highways. Naturally we shall try to have them intersect those highways at the branching points so that they may serve the largest possible number of people.

At the place where the intersections occur, the street area may be enlarged to create small plazas.

These plazas will be not only of traffic service, but will lend themselves to the construction of the desirable architectural accent.* At these points also should be developed secondary centers, not only of business but of administration. Finally, there will be some need for diagonal streets, especially if the main framework be



AN INTERSECTION OF IMPORTANT STREETS

Development proposed in Philadelphia. Note the grouping of the local public buildings.

rectangular, in order to develop, through the inducement of short cuts, main traffic highways that will effectively relieve minor streets of the burden of through travel. Incidentally these short cuts will be an economy in transportation.

The system of main highways, thus developed, if made sufficiently elaborate,† will constitute the skele-

* Raymond Unwin's "Town Planning in Practice" contains a very interesting discussion of various ways of treating street junction points architecturally, so as to secure such accents and break the monotony of streets.

† Some comments on aesthetic considerations, which are given later, in Chapter VII, are applicable to main traffic roads as well as to residence streets.

ton of the extended street plan. We shall find it in complete articulation with the street plan of the inner city. Then, the main highways having been planned, the interstices between the main lines of the framework can be filled in with those minor streets which will not invite through travel. Indeed, for the further discouragement of such travel these need not always be straight, direct, or of easy gradient. They should, rather, be quiet byways for residence, and given a correspondingly cosy and domestic character.

Of the main highways, many will probably carry lines of rapid transit. The number of these must increase with the growth of population and with the outward extension of the city, so that it will be best to make them of such width that it will be practicable to put car tracks on any one of them, should the need arise.* It never ought to be necessary to put car tracks on a street so narrow that they absorb most of the roadway. A prohibition, such as that now effective in New York, which forbids the construction of a single track surface railroad on any street having a roadway less than thirty feet wide, or a double track surface railroad where the roadway is less than forty feet wide, would safeguard the minor streets.

As to just how wide the great thoroughfares should be, it is as impossible to designate an exact standard for them as it is unwise to standardize minor streets. They will be used in various ways for various kinds

* It seems reasonable to expect that a persistent increase in the use of electric surface roads in cities must result not only from growth of passenger travel, which increases faster than population, but through appreciation of their freight carrying value. That is to say, it is likely that eventually there will be diverted to their rails—between certain hours at least—much of that transportation which now, through breakage of bulk and laborious individual truckage, adds so disproportionately to the cost of freight movement, while so increasing the congestion of streets and the wear of pavements.

of transportation. But these thoughts at least may be kept in mind:

1. That the primary purpose of such highways is to make it possible for the travel upon them to move safely and easily, swiftly and inexpensively.

2. That the whole history of transportation has been marked by a gradual increase in the size of the transporting unit, so that it behooves us to be generous in the provision of space.

3. That as the travel upon such thoroughfares will be human travel, for the most part the daily ebb and flow of the tide between home and work, it will be well to make these streets, as far as practicable, pleasant ways of going.

With these considerations in mind, the statement may be repeated that it probably is advisable to make all main highways wide enough to carry a double-track surface railroad, and it is desirable that they offer the opportunity to put this on a distinct right-of-way. As a city grows, the tendency is to utilize all streets of this character for rapid transit, and to recognize this in the platting is simply a commonsense look ahead. Track gauges differ somewhat, but in order to provide the right-of-way, it would be necessary as a rule to be able to set apart a strip at least twenty feet wide. The separate right-of-way, though it may not always be granted, is desirable because it permits a quick movement of cars, and makes their operation possible at the minimum of danger and discomfort to other traffic. This acceleration of the street car movement is a matter of economic concern to the community, because it widens the zone of available residence for the city's workers, and, in doing this, gives marketability to increased areas of land for home sites.

On a street where general traffic is of a business

character, it is likely to be enough to separate the railroad right-of-way from the street proper—whether the railroad be in the center or at the side of the street—by simply a curb. An additional foot of space would take care of this. Where the traffic is largely made up of pleasure driving, as on boulevard or parkway, or on a high class residence street, it may be well to widen the strip a total of five to twenty feet beyond the actual car requirement, in order to permit the screening of the track, by planting trees and shrubs, to permit the deadening of the railroad's noise and the elimination of its dust by wide turf borders, or the ornamentation of the space with flower borders and the training of vines. Further, if the street railroad be allowed such separate right-of-way, which can be turf covered between the rails, the cost of construction is considerably less than when the road is required to lay a pavement. In many cases the saving would be enough to pay for the additional width of street the arrangement requires. It may be noted, however, that the community has something to gain, as well as the company, in any safe reduction of construction cost which may make possible a low fare for a long ride.

In addition to the space set aside for car tracks—a space, that is to say, of twenty to forty feet—there must be space for vehicles to stop at the curb without interrupting the through travel. This means the use, for the two sides of the street, of some sixteen feet. Then the number of streams of through travel for which there must be provision is a matter that cannot be treated in any general way. Each case must be considered by itself. Some streets, for instance, lead simply into open country, becoming more and more sparsely settled the further one goes from town; others are highways connecting important and popu-

lous communities with the city, and carrying a correspondingly heavy traffic; others again lead to parks or popular resorts. In any case, it must be foreseen that the traffic will grow faster than the city grows, and it will seem that to provide for two uninterrupted lines of travel in each direction, one for slowly moving and one for swiftly moving vehicles, would be generally a minimum for such main streets as are under consideration.* Because it seems reasonable to expect the unit of vehicle to increase in size, and because for rapid movement and heavier travel it is necessary to provide ample clearance space between vehicles, we may assume that four lines of travel would require thirty-six to forty feet.

This is fairly liberal, for under present conditions thirty-six feet allows a clearance space of about a foot on either side of each vehicle, and it might perhaps be argued that the vehicles standing at the curb do not require any clearance space of their own. Moreover, the manufacturers of motor trucks, in reply to inquiries, now assert with rather remarkable una-

* The author is aware that a report recently brought out, under the auspices of the Society of Technical Superior Officers of German Cities, expresses the opinion that very broad carriage ways do not appreciably distribute the traffic, even when the traffic is heavy. In proof of this it states that the traffic keeps its accustomed tracks, as shown by the wearing down of strips of roadway surface, while the pavement between these tracks remains little used. With due deference to the source of this report, it should be pointed out that the finding is not, as a matter of fact, adverse to the value of broad carriage ways. The "little use" of "the pavement between"—by which one vehicle gets past another, on occasion—may make the whole difference between the efficiency and congestion of a highway. But it is true, that if the increase of width be not enough for another vehicle plus its clearance, the addition is not worth much. For example, five feet might be added to the width of a congested roadway without appreciably relieving the situation, since this space is insufficient to allow a vehicle to get by, or to accommodate an additional line of vehicles.

nimity that the limit of width has been reached. The fact, however, that the historic tendency in nearly every kind of transportation unit is against their statement seems to justify the proposed extra provision for the future. And it may be recalled that if vehicles are backed to the curb, instead of standing parallel to it, they need thirteen and a half feet, or a

CAR TRACKS ON A CENTRAL RESERVED STRIP—TREE-BORDERED AND SODDED
View of a section of Beacon Street, Boston.

total of twenty-seven feet on the two sides, instead of the sixteen allotted in the original estimate.

Finally, as business is likely to make use of these streets—the stores that serve the residential neighborhoods should be encouraged to locate on them—there must be allowance of sufficient sidewalk space. This could hardly be less than twelve feet on a side, whether or not it be all paved at first.

A main highway having a width of one hundred feet would seem, these calculations being considered, to be close to the minimum. It might provide:

Four lines of through travel.....	36 to 40 ft.
Space at two curbs for waiting vehicles...	16 to 16 "
A double car track.....	20 to 20 "
Two sidewalks	28 to 24 "
	100 100 ft.

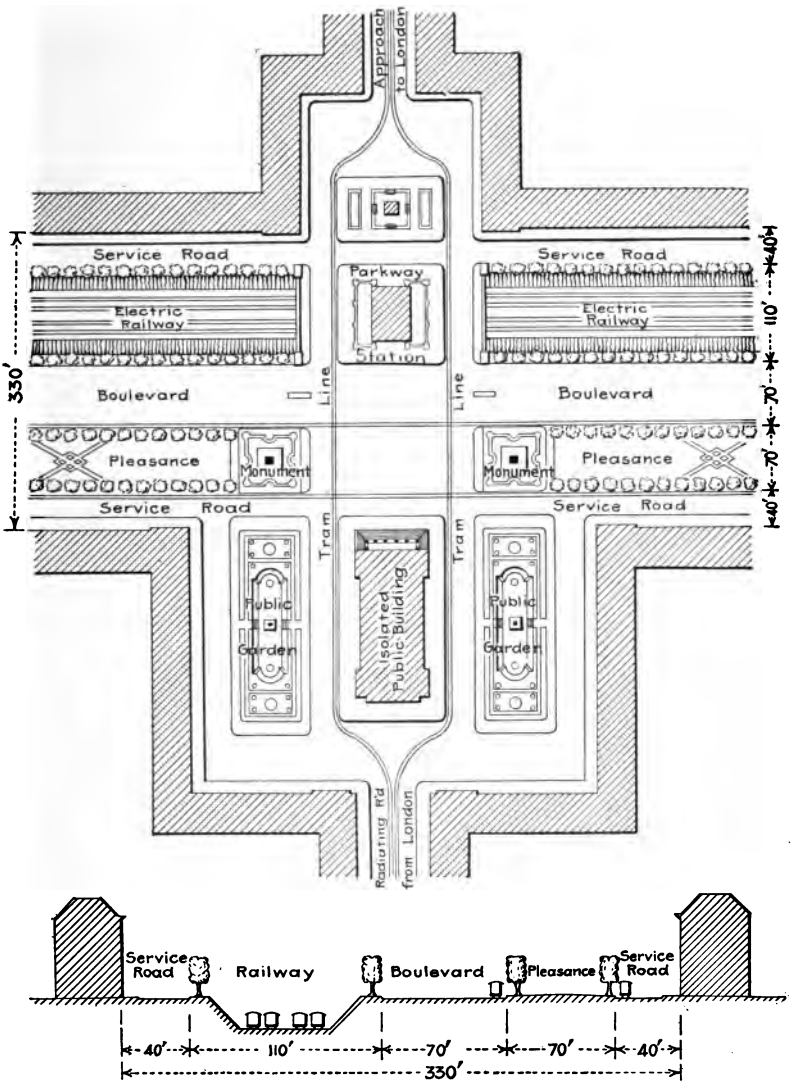
If the railroad strip were given the additional width suggested, if the sidewalk space were widened—twenty feet has been suggested for a business street, and if trees are to be placed on a main highway, where the buildings are likely to be erected at the front lot line, there should be enough sidewalk space to make it possible for them to stand as much as twenty feet from the building line—if there were provision of a bridle path, if business and pleasure vehicles had separate roadways, if there were a broad central promenade, or other important ornamental features, the width would be increased to two or possibly three times these figures.

It is interesting in this connection to note that at present Berlin requires that principal thoroughfares shall not have a less width than 95 feet; that the Royal Commission on London Traffic makes 100 feet the standard for first-class arterial streets, and 140 feet for "main avenues"—the latter to carry four lines of tracks; and that secondary German cities, such as Leipzig, Frankfort, and Hanover put the figure for main thoroughfares at 85 to 118 feet—none of them provisions that can be said to be too liberal as respects the future. On the other hand, Unter den Linden in Berlin, with its tree-lined central promenade, is 193 feet wide; the Ringstrasse in Vienna is 188½ feet; the Avenue des Champs-Elysées in Paris varies from 230 to 260 feet; Arborway at Franklin Park, and portions

of Commonwealth Avenue, in Boston, are 200 feet, Eastern and Ocean Parkways in Brooklyn are 210 feet, and 150 feet is by no means unusual among Western cities of the United States.*

There are one or two other points to be emphasized, with reference to these wide streets: If a width of at least a hundred feet for main thoroughfares seems extravagant, let it be remembered that when such streets are widened, and thus are able to serve adequately their proper function as main traffic highways, it will be possible to narrow all the streets which are of distinctly local character. To give a few strategically placed principal streets ample width, so that through travel will find in them sufficient accommodation, is in actual fact not as extravagant as to give to all streets, whether local or arterial, a uniform width which is more than they need for the one use and not as much as they ought to have for the other. To put the matter concretely, we may say that in any particular area to raise the width of twenty miles of street from sixty feet to one hundred feet, and sometimes more, reducing at the same time the width of forty

* A most interesting scheme for a great city highway is one drawn up by D. Barclay Niven, Esq., F.R.I.B.A., for London; but, as Professor Mawson remarks, applicable with local adaptation to any large city. This contemplates a thoroughfare 330 feet in width. It is divided as follows: A service road with sidewalk, forty feet; a four-track electric railway, in open cut, one hundred and ten feet—this space including the sloping sides of the cut; a "boulevard" drive, seventy feet; a promenade or plaisance, tree bordered, seventy feet, and then the second service road and walk, forty feet. This of course is very expensive and very grand in scale; but if we imagine it applied to a radial road, and consider the extent of additional building area which it would make available by its traffic efficiency, the expense may not seem unwise. A reproduction is appended of the interesting diagram, illustrating such a street with the location of public buildings at an intersection, which Professor Mawson gives in his monumental work on "Civic Art," published in 1911.



D. Barclay Niven's Plan for a Great Highway for London

other miles of street from sixty feet to an average of less than thirty feet, would really mean an appropriation of less land for streets. Furthermore, there is incalculable economy in getting the main traffic streets wide enough at the start. In June, 1907, the Association of Municipal Corporations of England submitted figures which showed that two-thirds of the great English towns had expended on the widening of main highways during the preceding ten years an average of nearly a million pounds a year. Had those streets been given sufficient width at the beginning, when values were low, almost all of this drain would have been saved.

But not only is there financial economy in building well located main thoroughfares on an ample scale; there result also a great increase in street efficiency, the more economical development of real estate as well as of streets, a street system of much more variety and interest than one in which all streets are alike; and, finally, a system that, by means of these great highways, establishes frequent fire breaks and makes it possible for strong currents of fresh air to percolate through the city.

A danger that the platting of main highways on such a general plan as here outlined may lead to uniformity in street system, at least as respects their main framework, is less real than apparent. It has been said that topography and existing country highways must largely determine the lay out of these streets. The first, for the avoidance of very steep grades, is likely in most cases to require some long sweeping curves; while country highways are seldom perfectly straight for extended distances—for the taking out of small kinks, which is the thing that was meant in suggesting their "straightening," would not

remove definite changes of direction. Moreover, the proportion of towns built on a level plain, and which, therefore, might be thought in danger of adherence to an unbroken stereotyped pattern, is small. Even among them, one portion will often be bounded by a body of water, or by other natural feature, of irregular outline; a meandering stream will cause variety, or the location and irregularity of park lands will break the uniformity. Finally, the minor streets, under the suggestion here broadly outlined, will always lend the charm of the unexpected. Mere likeness of direction in streets does not much impress one on the ground. Variation in width counts for more.

But if the worst did happen, and there was, conceivably, a likeness among principal traffic streets in the extension plans of various towns, few persons would ever think of comparing designs. Indeed, the vague consciousness of likeness in respect to those streets would prove, as far as it goes, something of a public convenience. It is to be recognized, too, that he who adequately approaches the problem of city planning will look for nothing more eagerly than for evidences of the city's natural individuality. This is an intangible something, more expressed perhaps by irregularities than it is by any other feature, which is the secret of each city's own peculiar charm. To any evidences of this which he may find, the city planner will pay great deference. He will let them temper his whole re-casting and subtly affect his every scheme.

As Cornelius Gurlitt has said, "The artistically creative city planner should seek out all peculiarities of the site and emphasize them according to their individuality; thereby, whenever possible, reconciling every contradiction between his planning and the aspects of nature. He should take into question the

irregularities of the surface, the existing streets and ways in their natural configuration, the property lines and the single natural features—even if nothing but several old trees. Notwithstanding this, he should impart all practical advantages to traffic, to circumstances of habitation, and to the administration of individual properties."

In suggesting rules, one is necessarily definite; in carrying them out, there will be a thousand exceptions. Thomas H. Mawson has well said: "Even to design a house or garden ideally, it is necessary to grasp the configuration of the site as a whole, and to catch the atmosphere and traditions of the domain and district with innate artistic perception, or even the rarer response of poetic grace. It is much easier to build and garden well—to impart a grand or stylish air to the mansion and to make the garden superior and luxuriant than to build a fine city." A book of this kind cannot, therefore, dictate; it only suggests, in a broad and general way.

At the close of a chapter on main highways, there should be, perhaps, a special word with regard to the business district. For here is a district where all the streets are traffic ways. But even here some are more so than others; and the general principle of particular width for those which carry particularly heavy traffic, of the value of radials or diagonals to furnish cut-offs, of the avoidance of jogs and irregularities of platting, applies as it did for the town as a whole, except now with more universality and in a concentrated form.

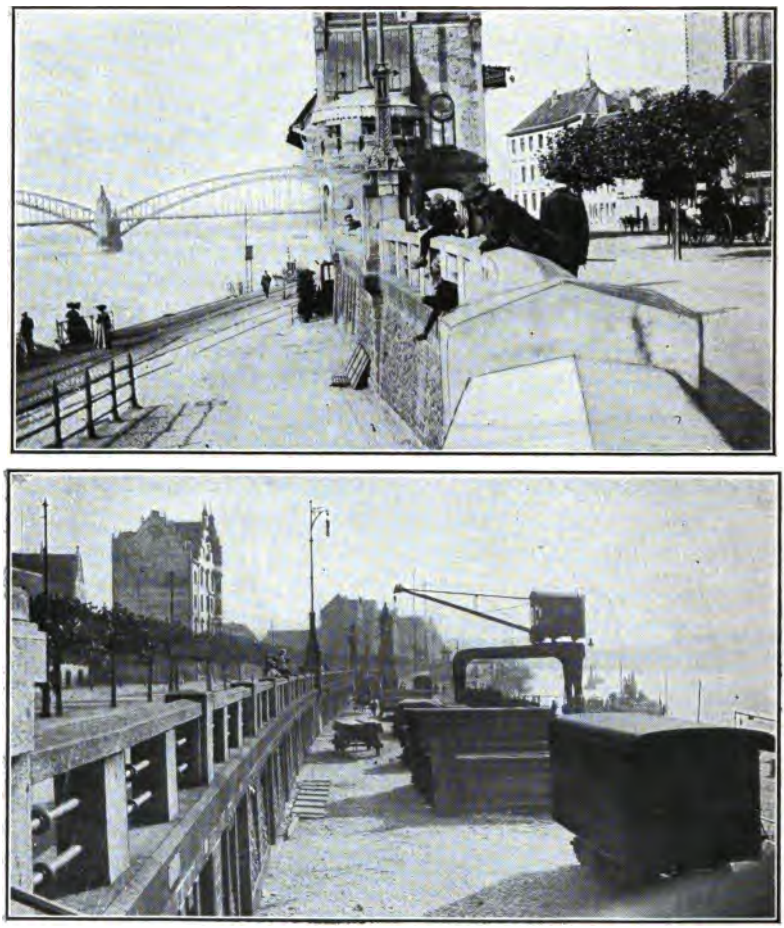
It should be noted, however, that in the business district an alley system is of peculiar value. An alley gives an additional opportunity for fighting fire, that may be worth much in a section which is closely built

up; and at doors that open on to alleys, goods can be loaded and unloaded systematically without interruption by, or interruption to, the traffic of the street. Because of these facts, business lots which run through to alleys have a higher valuation than those which do not possess such facilities. The alley is also, its frontage costing only a fraction of that on the street, a convenient place for stables, boiler rooms, etc. Undoubtedly, a business district is much more efficient with alleys than without them.

If the town be on a navigable body of water, a two-level construction of the marginal street—nearly always a main thoroughfare—is of great usefulness. This can be secured by running a bank or retaining wall longitudinally through the middle of the street. The half at the summit of the bank or wall thus becomes a sort of terrace, or elevated street. The natural incline of the shore is likely to facilitate such an arrangement, which has the advantage of making possible the devotion of the lower level to commercial purposes and of the upper to the ordinary purposes of traffic. Stairs and inclines connect the two levels at frequent intervals; and the street's possession of a higher surface simplifies greatly the matter of bridge approaches.

Waterfront commerce, with the slow processes of loading and unloading and its quite common need of surface railroad tracks, may be a sad impediment to normal street traffic when the two are not separated. Conversely, the street traffic is likely to be hardly less of a hindrance to waterfront commerce if both try to use the same space. It is because of this that a two-level street on the waterfront tends to increase of efficiency. It also means enhancement of attractiveness. The buildings on the upper stage, looking over

the lower level, are given long views that miss only the sordid and slovenly details of commerce; while the outside walk of the street's upper half offers a vantage



TWO-LEVEL STREET ON THE WATERFRONT
An example from Düsseldorf of a useful street construction.

point of never failing fascination for watching the busy scenes below and the play of wind and light upon the water. Finally, the view of the city, from the

water, is made by this construction much more orderly, impressive, and dignified.

Nothing has been said as to the height of buildings on main thoroughfares. This is because the width of the street should be the factor determining the maximum limit of height to which buildings can be constructed. If we get the street widths, we get—or should get—the building height limit automatically. The usual European regulation is that no building shall exceed such height that any part of it shall cross a line drawn from the middle of the street to the top of the building at an angle of so many degrees. The angle varies in different cities; but is most often forty-five degrees.

Just what the number of degrees should be, or whether this is the best method of establishing the connection between the width of the street and the height of the buildings on it, is not the point here. The important matter is simply that the width of the street ought to determine the height of the building. In most American cities this would mean a reduction from present practice. As, however, in the business sections of cities the tall building is an economic necessity, or tends to become one, the future city plan, under favoring conditions, might properly include some squares or plazas specifically designed to afford proper sites for such buildings. It has been suggested also that towers, if so separated from one another as to admit light and air in ample quantity, would not be objectionable, though they did exceed the street width. We may note, however, that from the standpoint of artistic design, a proportion between the street's width and the construction along its edge is essential. There as elsewhere is operative the eternal law of relation between solids and voids.

CHAPTER VI

HOW TO LESSEN THE COST OF WIDE STREETS

If it be necessary to the good city plan that there be a considerable number of very broad streets, it is encumbent upon us to secure the desired thoroughfares at the least practicable cost to the community. It is true that most streets, in American cities at any rate, are dedicated; but there is always the danger that the dedicated street will not be as wide as the anticipated growth of traffic would require, that the landowner will not voluntarily give to it the exact location demanded by the comprehensive plan, and finally that some streets, or parts of streets, may not be dedicated at all.

Out of the consideration of these facts, two needs become apparent, viz.: An economical method of procuring broad streets when they are not a gift; and a central authority with official machinery enabling it to represent efficiently the interests of the community as a whole in dealing with street dedications. With reference to the latter need, it is obvious that the public and the proprietary interests are not always identical, and that, when the proprietor gives and the public receives, the former's personal and pecuniary point of view is likely to have a disproportionate influence, if there be no ready means of asserting the public's rights.

In this chapter we will consider the measures which

have been tried or proposed for reducing the cost of securing wide streets. Then we can take up the second need—that of central control—in the chapter that follows.

Within the confines of built up portions of the town, the question of procuring a wide street becomes most often a question of street widening. The economic problem is thus quite unlike that presented in outlying areas where the desire is to plat streets broadly at the start. The problem in the built up part of the city is the more difficult; each single case is more apparently urgent, and involves larger values than does the problem in outlying regions.

The familiar European and South American method of grappling with it is by the measure known as "excess condemnation." Under this procedure, the municipality condemns not only the property needed to obtain the desired width of street, but enough in excess of that amount to give to it the ownership of the building plats abutting on the widened street. It may build upon these, or, after making the street improvement, it may sell them at the enhanced value which the improvement has given to them. If it sells, it secures to itself the profit which its own work has created, and frequently this profit is sufficient to pay the entire cost of the improvement. If it builds it has secured, perhaps, good sites for public structures, or it may be able to supplement a mere slum clearance by good housing measures. Under either condition, it is in a position to impose radical restrictions on the character of the construction at the street edge. There is assurance that the great public work which it has prosecuted will not be demeaned by unworthy buildings or by stretches of property held vacant for speculative purposes.

American cities have been slow to adopt the methods of excess condemnation, because of the risk which it was popularly felt would be run by permitting a city to "engage in the real estate business." But cities are in that business all the time; the risk in this phase of it is really very slight; and with the gradual improvement of American municipal government and a more general appreciation of the many advantages of the procedure, there has developed a strongly defined trend toward its adoption.

The first American act recognizing the principle was passed in 1904, in Ohio; the next year a similar bill was added to the code of the public local laws of Maryland; in 1906 Virginia passed the most general of all the acts, permitting the acquisition of property adjoining not merely parks but streets; and in 1907 the legislature of Pennsylvania enacted a law which authorized the acquisition of property within two hundred feet of any park, parkway, or public playground.* All these acts give the power to resell subject to restrictions that will insure suitable development along the proposed improvement, their ostensible object being "to preserve the view, appearance, light, air and usefulness thereof." In 1907, the Connecticut legislature went further still, giving to a Commission on the City Plan, the creation of which in Hartford it then authorized, the right to resell "with or without reservations" property not needed for an improvement.

It would seem from these facts that many American cities are, and more are soon to be, in a position to avail themselves of a method of street widening

* Andrew Wright Crawford in *Charities and the Commons*, Feb. 1, 1908. It is by this provision that the diagonal parkway from City Hall to Fairmount Park, in Philadelphia, is being constructed.

which has had satisfactory test, and been the means of accomplishing extraordinary improvements in the congested quarters of cities of other nations. But the plan has two limitations: Its dependence for practicability on its advantage in providing a quick overturn, promptly reimbursing the municipality for monies expended, unfits it for use in outlying regions where the resale of the abutting property at suddenly enhanced prices might prove a very long process. Second, it requires for execution, even under conditions that are exceedingly favorable, a large outlay or credit. Before taking up the problem presented by residential and suburban regions, it will be well, therefore, to note another method of street widening in business sections which has had successful trial both in Europe and America—as in Hamburg, Germany; and in Philadelphia.

It was desired some years ago to widen Chestnut, Walnut, and Arch Streets, in Philadelphia—the three streets of the city that were most congested by business traffic. To have made the improvement by the "excess condemnation" method would not only have required an outlay or credit of almost fabulous proportions, but, during the years which the work must have required, it would have paralyzed the business of the city. Accordingly, there was passed an ordinance—in 1884 for Chestnut Street, and in 1894 for Walnut Street, the dates being important as showing that it has now had opportunity to stand the test of time and of many actions—authorizing the Department of Surveys "to revise the city plan" so as to widen the street in question to a certain specified width—as, for example, seventy-two feet for Arch Street. The second section of these ordinances reads: "After the confirmation and establishment of said

lines, it shall not be lawful for any owner or builder to erect any new building, or to rebuild or alter the front, or add to the height of any building now erected, without making it recede so as to conform to the line established." The most valuable business property affected by these ordinances was that on Chestnut Street between Eighth and Sixteenth, within which distance about one hundred and sixty properties have up to this time been changed, and in the process set back. In actions brought for damages, the city contended that no damage was occasioned when a property still had a depth of a hundred feet or more, after the widening had taken place, with frontage not only on a widened street but also on a rear street or alley.* As a result, the widening of streets of enormous property values has now been practically secured, by this means, at almost no cost to the municipality.

A modification of this method, to fit it for use in regions of smaller property values, has been proposed by Charles A. Ferry, of New Haven. He suggests that when new lines are run for a street, in order that it

* Francis Fisher Kane, an attorney of Philadelphia, describes the case of the new Wanamaker store as one of the most interesting and significant which came up. This property, he writes, "has 250 feet on Chestnut Street and Market Street, and 489 feet on Thirteenth Street and Juniper Street, and is the only Chestnut Street property covering an entire block and having four fronts. Mr. Wanamaker's witnesses claimed that the loss of the strip of ground, 5 x 250 feet, occasioned a damage amounting to $93,950, which they worked out at the rate of $75.00 a square foot. The city's witnesses testified that no property in the city bore out their theory more clearly than this, and that the market value of such a property with four fronts, 484 feet deep on a 60 foot wide street, was equal in value to a property 489 feet deep on a street 50 feet wide. Notwithstanding witnesses who testified to the contrary, Mr. Gibbons, of the city solicitor's office, won the case, and the jury took the city's view and made no award." It should be added, however, that not all the cases have been equally successful, as some owners were allowed nominal damages.

may be widened, there be a separate award for damages for land and for buildings on the land. The city would then pay for the land and become the owner of it, while allowing the property owner to retain for a time the possession of his building if this projected over the line, on the payment of an annual rental that would be a certain per cent upon the land damage awarded. If the building were of small value, it might be worth while to move it back or to rebuild the front, at the city's expense; if alterations were made, or a new structure erected, the city would require that it conform to the new line. Thus in time the street would be widened at a nominal cost.

To both of these plans there is the objection that many years are likely to elapse before the improvement is complete, and that in the meantime the street presents a ragged appearance. This appearance is not different, however, from that which the street so familiarly has during the less desirable process of narrowing it, when buildings that had stood back are being brought to the front of the lot line. Moreover, the plans offer such economic advantages as to make possible great public improvements which, however necessary, could hardly be compassed by other means; and it is well to remind ourselves that in the long life of a big city—and these plans are applicable only in growing communities—the local discomforts of a dozen years or so are a relatively insignificant matter if they lead to permanent betterment.

But still another method of street widening is available, where there is continuous construction at the street's edge. It has less to recommend it, for it offers no addition of light and air, making concession only to traffic. This consists in carrying the sidewalks beneath the second floor of the buildings by means of

arcades, as on the Rue de Rivoli, in Paris. Then the roadway can be widened to what was the whole width of the original street, while the only property absorbed is that which is on the street level, of just the width desired.

With reference to platting new streets, or even to widening old streets, where values are less high, the buildings detached, and more or less property is vacant, there are yet other ways of reducing costs. For one thing, it seems not unfair, as suggested in a previous chapter, to meet some of the expense from the general tax, instead of putting it all on the frontage. The purpose of the improvement is primarily to serve the community as a whole. In these regions it is not the traffic originating on the street which needs the additional space. Indeed, to some extent the abutting property holders actually suffer annoyance through the increased traffic which added accommodations invite. That they should pay, however, for a little more street width than they would have had to do, had not that particular street been chosen as a traffic highway, is probably just, for the improvement bestows on the property a speculative value through the possibility that business will follow the enlarged tide of travel. But that a share of the added cost should be borne by the whole community, and perhaps also by posterity—by means of a bond issue—is also fair. It may be remarked, however, that this plan, while lessening the burden for abutting property, does not reduce the gross cost.

There has already been suggestion, in preceding chapters, of another way by which cost can be reduced in sections not closely built. This is by securing an easement over those front gardens which, in the kind of area now under consideration, will be an almost

universal accompaniment of such construction as there may be. Perhaps the method cannot be described more clearly than by giving a concrete example of it. Sixteenth Street in Washington has an apparent width of eighty feet. It is really platted, however, twice that width, from building line to building line, and if the time should ever come when business invaded the street and the traffic grew to large proportions, the street could be given its true breadth—seemingly "widened," that is to say, to one hundred and sixty feet—without condemning any property. Meantime, as a fine residence street without heavy traffic, and with no commercial business, Sixteenth Street is lined with houses which have before them lawns and gardens forty feet or more in depth. On either side of the street, the householders are at liberty to fence these gardens, and use them almost as if they were owned in fee simple, save only that no store, shop or other structure can be built upon the front forty feet of them. On the other hand, the residents are protected from the danger that some grasping individual will thrust a building out to the present sidewalk line, interrupting the view and breaking the continuity of gardens—a protection that is no slight compensation. And that it may be seen that the law imposes no undue hardship, let it be observed that if an owner desires to put in a store before the city is ready to widen the street, or his neighbors to give up their front gardens, he can do so, provided he does not advance beyond the general building line. The course he usually follows is to extend the sidewalk paving in front of his property quite to the building line, sometimes using the space for outdoor stands, or show cases, to attract trade; and perhaps erecting light awnings over it.

Under a like regulation the alleys of Washington

are being transformed into minor streets. The law reads, in part, "That no dwelling house hereafter erected or placed in any alley shall in any case be located less than twenty feet back, clear of the center line of such alley." And a law of Pennsylvania provides, as does the law in other countries, that cities may lay out streets in anticipation of future needs and yet postpone entering upon the land for construction or for opening it to the public. Until the city does so enter on the land, the owner has the free use of it. "He receives payment only when the opening takes place; but if in the interim he shall have erected any structure within the limits of the proposed street, he will receive no compensation therefor when the street is opened. . . . The procedure is to establish a building line, set back a certain distance from the street line, paying damages only when the power to prevent the erection of a new building is actually exercised."*

That such measures mean a great cheapening in the cost of street widening operations must be perfectly evident. Very often, when a street is mainly lined by residences, most of the abutters would welcome the establishment of a building line that would protect them from inconsiderate neighbors. This is shown by the readiness with which people pay high prices for residence property in neighborhoods where land companies have imposed such a restriction. At least, it is conceivable that abutters would frequently be willing to waive claims for damages. Mr. Olmsted has said,† in discussing this matter: "When the actual physical widening of the street takes place, through absorbing the restricted zones on each side of it, the

* Frederick Law Olmsted in *The Survey*, Feb. 4, 1911.

† Frederick Law Olmsted in his Report to the Pittsburgh Civic Commission, 1911, on "Main Thoroughfares and the Down Town District."

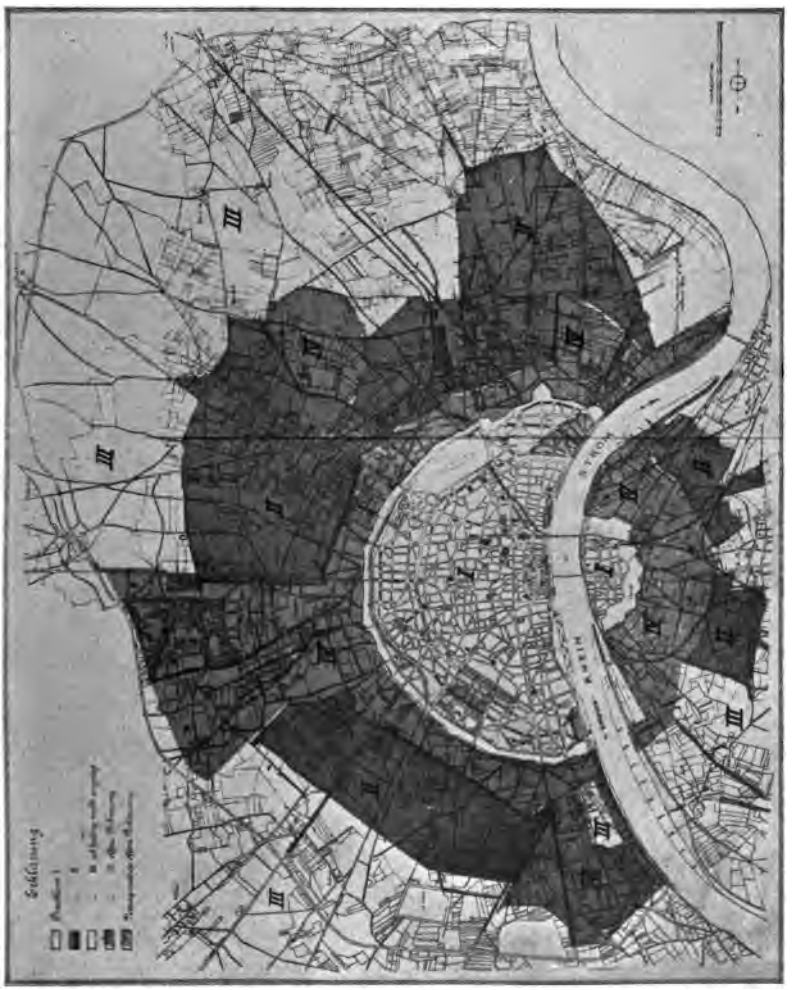
damages for land taking will be comparatively small, because at that time most of the abutters will want nothing so much as that very widening, if only to bring the sidewalks in contact with the fronts of their buildings. But regardless of its clear financial advantages to the city, in reducing its total payments for street widening and especially in distributing the burden of that cost over a long period without running up a large bonded indebtedness and interest charges, the fundamental argument for this method of procedure is that it avoids the absolute dead loss to the whole community resulting from the destruction of valuable buildings."

There is another way still of curbing the cost of securing wide streets. This is by establishing building zones. For it is the primary function of these to set bounds to the degree of intensiveness with which the land can be developed. Speculative inflation of real estate values, due to "sweating the land," or to the possibility of doing this, is therefore eliminated. When land for street use has to be purchased, the removal of this factor may prove of considerable moment. Nor does the beneficent influence of the zone system, as respects the acquirement of wide thoroughfares, stop there. As already pointed out, the setting of a definite limit to the use of land in any particular part of the city, makes it possible to calculate pretty closely just how wide the streets need to be. Even with main highways it ceases to be necessary to add so very much merely for good measure.

Since the zone system, which has been so greatly developed in Germany and so little in the United States, has thus an economic value to cities in facilitating the development of a rational street system, it will be well to note briefly two of its other advantages.

As to the one, Mr. Marsh, in his "Introduction to City Planning," goes so far as to say of it: "The most important part of city planning, as far as the future health of the city is concerned, is the districting of the city into zones or districts, in which buildings may be a certain number of stories or feet in height and cover a specified proportion of the site, that is, the determining of the cubage or volume of the buildings." The official Congestion Committee of New York included this suggestion among its recommendations of 1911; and one better understands the statement on reading, in one of the leaflets issued by the preceding voluntary Committee on Congestion of Population in New York, the assertions: "The high cost of land is the first and inevitable cause of congestion. To pay a net return of eight per cent on land worth $2 per square foot, with a density of 250 per acre, each family of five must pay, for the use of the land alone, $121.96. . . . Unskilled wage-earners cannot be properly housed on land worth over $1 per square foot." As to the other advantage, it is necessary only to suggest with what economy and efficiency a section of the city could be developed for manufacture, with reference to transportation by rail and water as well as by streets, if it were known that it was to be always devoted to that purpose only.

The regulations under which the cities of Germany have developed the zone system are simple; but they are not uniform, and would be very long to quote. The city cuts its area into sections, irregular in size and outline, conditions of site and of previous development largely determining these matters. The Graded Building Code of Munich, for example, has authorized nine grades of buildings; while the regulations of Düsseldorf recognize nine classes, or sections, and then



PLAN OF COLOGNE AND ITS SUBURBS IN 1901

Illustration of the German zone system. In Zone I, the heart of the town, buildings may have four stories and be 66½ feet high; in Zone II, they must not exceed three stories and a height of 52½ feet, this comprising the suburbs of more urban character; in Zone III, which contains the more rural suburbs, the limit is two stories and a height of 38 feet; and in Zone IV it is two stories and a height of 52½ feet, this district being reserved for "open," or villa, building.

subdivide some of these three or four times. The city itself is still further subdivided, sections of each class being located in different parts of the city. In Frankfort, there is the simple arrangement of the Inner City and the Outer City, the latter having an Inner Zone and an Outer Zone, each of these being then divided into Residence Section, Mixed Section, and Factory Section.

In the United States, distinct building zones as regards the regulations for fire-proofing are usually recognized. There has been also interesting legal recognition of the principle in the creation—as in Los Angeles—of an Industrial District and a Residence District, with the prohibition of factory construction in the latter, while the determination of zones for buildings of different heights and areas has stood the test of constitutionality in Boston and in Baltimore.* A recommendation that the plan be applied to New York is made by the New York City Commission on Congestion of Population, as we have noted above.† Finally, voluntary restriction on the part of persons who are developing large tracts of land is as well known as it is significant. An advertisement, for ex-

* In Boston two districts have been established, and the division of the city in accordance therewith has been upheld by the Supreme Court of the State and of the United States.

† Report of 1911. Though details of the recommendation are hardly pertinent to the subject of the present chapter, it may be worth while to note, briefly, that the committee's proposal is that no building of any sort in Manhattan below 181st Street shall exceed a cubage of 174 times the area of the lot, and in the rest of New York a cubage of 120 times the lot area; and that no factory or loft building shall have a cubage exceeding 132 times the area of the lot. No tenement below 181st Street, it is proposed, shall exceed four stories in height unless it be fireproof; outside of that district it shall not exceed four stories anyway, and for outlying regions the suggestion is a three-story limit. Nowhere shall the tenement be higher than the widest street on which it faces.

ample, observed on a street car, reads: "New high-class restricted residence park on. . . . No flats, no factories, no saloons."

Most German municipalities own vast areas of building land. A dominant purpose is to prevent injurious inflation of prices; but clearly that ownership, for which American cities seem not yet ready on any large scale, is a very direct way of cheapening the cost of street building, and of providing an authoritative central control of street platting.

The latter point is yet to be considered. Here we have only to note, in summary of this chapter, that the early laying out of main traffic streets on an ample scale, with all its negative and positive advantages, does not involve, if carefully done, an expense that is prohibitive. This means not less to the property holder than to the city at large. Aside from its narrower economic aspects, the fact makes possible the rational planning of streets.

CHAPTER VII

PROVISION OF CENTRAL CONTROL

COMING now to the matter of central control, which has been named as an essential desideratum in the platting of main highways, there are several methods by which it can be exercised. These may be effective without the necessity that the cities themselves shall be owners of the land to be divided—as to such large extent they now are in Germany. It is fortunate that is so, since American cities are not prepared to buy large tracts of suburban property.

Starting with the assumption that for the good of the community the platting must be done from a community standpoint, rather than from that of the individual, there are two theories as to the best method of securing such a viewpoint. One is that the work can best be done by a local commission, usually made up in part of responsible officials; the other is that it is likely to be done most wisely by outsiders, who are free from local prejudice, preconception, and interest, and who are able to see the problem with fresh eyes.

Experience has revealed, however, that it is not so hard to get a fairly good city plan put upon paper as it is to secure faithful adherence to the plan through the long course of years which must elapse before it can be transferred from paper to fact. This desirable adherence, one must hasten to add, is to the true spirit of the plan rather than to its letter. There will almost

surely be need of modifications in it now and then. The best planner cannot foresee every contingency. He does not pretend to infallibility. The virtue of city planning lies not in its certainty of meeting all future needs, but in the assurance that it will wisely meet a good many of them. Even with a plan, there will have to be adjustment and readjustment, remodeling and moulding to fit it for new conditions. To make sure that this shall be done with far-seeing vision and with the interests of the whole community at heart is what complicates the problem. It usually, for instance, would not be safe to leave the control of street platting wholly in the hands of a body of which the complete membership was constantly changing.

In reviewing various schemes devised to meet these conditions, one gets the impression that cities, both in Europe and America, are still at the experimental stage as regards the control of street platting. Very likely they are; very probably the perfect machinery for the planning and building of cities has not yet been worked out.* But because it would have to be nicely adjusted to local administrative procedure, and because this procedure is various, it is altogether unlikely that any one scheme will ever be devised which could be suitable for every case. Hence there is need here only to touch on the plans, that their tendency and general principle may be observed.

* The National Conference on City Planning, in America, has given serious consideration to this and kindred topics, and at the Third Annual Conference (Philadelphia, May, 1911) the Committee on Legal and Administrative Methods, Andrew Wright Crawford, Chairman, presented drafts of several acts that might be uniformly adopted by the several States to the great simplification of intelligent city planning procedure. The report which introduced and explained the principles of these acts is given in the Appendix.

T. C. Horsfall,* in a long chapter on the General Building Law of Saxony, gives at length the sections referring to town planning. These require special attention to the following, among other, points. They may be quoted here as seeming to offer, on the authority of German students of the subject, a summary of the desirable scope and temper of town planning operations as centrally controlled:

"(*a*) The position of the blocks of building, as well as of the lines of streets and the building-lines, must be adapted to the configuration of the land, and must be such that an adequate supply of sunshine in the rooms occupied is secured.

"(*b*) The dimensions of the various blocks of building must be such as to allow of the proper utilization of the ground for building.

"(*c*) The width of streets and footpaths is decided by the requirements of local traffic, and must be suitably graduated in accordance with the nature of the streets as main streets, by-streets, or streets used only for dwellings. In the case of streets of detached or semi-detached buildings, where there is no proper through traffic, the part of the road used for vehicles need not exceed a width of twenty-six feet. In the case of streets for which through traffic may be expected eventually, especially tram-lines, and a widening of the street must be anticipated, there must be front gardens of suitable depth on both sides. Private roads, which give access to the backs of buildings for several blocks, must not have a less width than nineteen and a half feet. . . .

"(*d*) Gradients in the streets must be distributed as evenly as possible; heavy gradients, deep cuttings

* "The Improvement of the Dwellings and Surroundings of the People: The Example of Germany," by T. C. Horsfall.

and embankments, as well as inordinately long straight lines of streets, must be avoided as much as possible.

"(*e*) In determining the directions of streets care must be taken to provide short and convenient connections between streets and with the chief centres of traffic.

"(*f*) Open spaces and public shrubberies must be so arranged in respect of size, position and number, as to be useful in relation both to convenience of traffic and to general welfare. Sites for churches and school buildings, as well as public playgrounds and recreation grounds, must be provided in sufficient number.

"(*g*) In deciding what shall be the kind of building allowed, and as to whether factories and workshops shall be allowed, the existing character of the district, or part of a district, and its needs must be taken into account.

* * * * * * * * * *

"The building plan, or building-line plan, when it has been once decided on, is authoritative in relation to all buildings in the district to which it applies. But the owner of land which the plan shows to be intended for use for public traffic, may use it till he has to surrender it to the community, for purposes other than building, and may enclose it with a suitable fence. . . .

"A plat of land, not yet built on, which is shown by the plan to be intended for use as a street or square, cannot be used for building purposes, except that eaves, balconies and other projections of buildings may be allowed to overhang it. The erection of temporary buildings is, however, permissible, but the owner must remove them, and any fences which he may have put up after the fixing of the building plan,

at his own expense, so soon as the land is needed for use as a street or public square."

In addition to these and other regulations the Saxon act has given to the Building Police,* upon whom is placed the responsibility for the making and carrying out of town plans, the valuable and radical right to expropriate lands and redistribute them. Section 54 reads,

"If the proper use, for building purposes, of land which is within the scope of a building plan is prevented, or made very difficult, by the position, form, or size of the plats of land or parts of the plats of land, then for the purpose of obtaining convenient sites for buildings, a repartition of the area can be made, even against the will of the owners, by an alteration of the boundaries of the plats, or by redistribution, in case the new arrangement is in the public interest, and a request to that effect is made to the Building-Police Authority either (*a*) by the Town Council, or (*b*) by more than half of the interested owners of land who together own more than half the land in question."

Section 58, in further elaboration, reads:

"The plats of ground belonging to all the owners concerned are to be thrown together, and the public roads which the new building plan makes unnecessary, are to be included. From this mass the land shown by the building plan to be intended for the future public roads must first be separated, and the building land which remains must then be distributed in such a way that each owner of a plat or plats of land shall have a share of the total value corresponding to the share which he had in the whole amount of land before

* Originally the Building Police were charged only with securing stability of construction and protection against fire.

redistribution. The community must have land for public roads assigned to it to replace the roads which were absorbed. In fixing the values on which the redistribution plan is based, and which are to be fixed with the help of experts, all material and legal conditions must be taken duly into account. For each of the plats of land suitable for building purposes one or more plats of land, as far as possible in the same place, must be given. Plats of land with buildings on them, as a rule, subject to rectification of their boundaries, are to be restored to the persons who have hitherto owned them. . . . Unavoidable differences of value between the earlier plats and those received to replace them can be settled in money."

The official circular which was sent out with the English town-planning act described that act's purpose as "to ensure, by means of schemes which may be prepared either by local authorities or landowners, that, in future, land in the vicinity of towns shall be developed in such a way as to secure proper sanitary conditions, amenity and convenience." The circular added that "hitherto the conflicting interests of different owners, and the absence of any power in the local authority to guide and control development according to the circumstances and requirements of particular cases, has resulted to a considerable extent in the development of estates, whether large or small, with a sole regard to the immediate interests of the particular estate and without regard to the amenity and convenience of neighboring lands." There was no wish, authorities explained, to harass individuals, hamper enterprise, or to go against the interest of any individual owner except in so far as the greater interests of the community made this necessary.

Under this English act, the (national) Local

Government Board is the arbiter. It may authorize the council of any borough or district to prepare a town-planning scheme "with reference to any land within or in the neighborhood of this area, if the authority satisfy the Board that there is a *prima facie* case for making such a scheme; or may authorize a local authority (i.e., a council) to adopt, with or without any modifications, any such scheme proposed by all or any of the owners." The scheme prepared, or adopted, by councils must be approved by the Local Government Board before it can take effect, and the approval can only follow Parliamentary hearings, or the opportunity therefor and for objection. The scheme subsequently may be varied or revoked by the Local Government Board, if sufficient cause be shown; and should local authorities fail to prepare schemes, or to adopt schemes that ought to be adopted, they can be ordered to act, or the Board itself can effectively adopt a scheme. The significant thing is that the plan is made locally, perhaps even by the landowners, and that it then must be passed upon by a central and official body representing the interests of the community.

Further, the act follows the German precedent in permitting a town-planning scheme to limit the number of buildings which may be erected per acre, and to designate the character and possible height of those buildings. It further provides, in so doing, that these limitations shall not entitle the owner of the property to compensation where the Local Government Board, having regard to the nature and location of the land affected, consider such limitation to be reasonable for the purpose of securing the amenity of the section which is included in the scheme.

In the United States, it is customary to require

landowners to file maps of their subdivisions, and to secure the approval of their plans by the city council or some other designated body—as the Board of Street Commissioners (Boston), the Board of Public Improvements (St. Louis),* the Topographical Survey Commission (Baltimore). The obtaining of this approval, however, is too often little more than a matter of form—especially when it is left to a council so concerned about other matters as to give only perfunctory attention to land development projects. A further weakness of the arrangement is the city's difficulty in exercising control beyond the city limits.

Various ways of overcoming this weakness have been tried. Wisconsin adopted a law in 1909, extending the council's authority in this matter to lands lying within one and a half miles of the city limits. Michigan gives to its cities control for two miles beyond their limits. In the cities of some States an extension of municipal authority over what is called the metropolitan area—practically a consolidation of separate outlying communities with the main city for the comprehensive planning of public works—has been effective. The commonest method in the United States, however, is to push the city limits out so far as to embrace a surrounding belt of partly agricultural land. Various cities then adopt what is called "the city map," requiring that new streets be platted in accordance therewith.

Theoretically, this is an admirable procedure; but it involves large expense for police and fire protection, lighting, etc., and practical difficulty has been found in enforcing adherence to the map. Landowners are too likely to lay out private streets and sell lots to

* Legislation transferred this authority in St. Louis in the spring of 1911.

unsuspecting purchasers who discover, too late, that the street cannot be publicly accepted because of non-conformity with the map. To obviate such a condition, some municipalities prohibit the laying of water mains or sewers on non-conforming streets, and Philadelphia authorities have refused to give lines and grades to builders on such streets. But the constitutionality of these acts is somewhat in doubt, at this time.

Hartford, Conn., has a Commission on the City Plan, authorized by State law. It is composed of the Mayor, the President of the Board of Street Commissioners, the President of the Board of Park Commissioners, the City Engineer, a member of the Board of Aldermen, a member of the Common Council—the two latter appointed by their respective boards—and two citizens, neither of whom shall hold any other municipal office, and who are appointed by the Mayor. The Commission serves without pay, but it is empowered to employ experts, as it has done, and its expenses are paid. Through the Commission, the city may take property by condemnation; and may resell, as we have stated, that which is not needed for an improvement. The law requires that "all questions concerning the location of any public building, esplanade, boulevard, parkway, street, highway, square, or park shall be referred to the Commission by the Common Council, "for consideration and report before final action is taken on such location." Various other matters "may" be referred to it.

The New York Committee on Congestion, in the carefully prepared report which it brought in just as this chapter was being written (March, 1911) recommended, among other things,

"The preparation by the city, through the Board of

Estimate and Apportionment, of a plan for the entire city, which shall include the following items:

"(1) The restriction of factories to certain districts.

"(2) The provision of transit lines and means of carrying freight upon the basis of such a districting of the city.

"(3) The determination of the main lines of streets and secondary streets as suggested by Mr. Nelson P. Lewis, Chief Engineer of the Board of Estimate and Apportionment.

"(4) Provision of sewers and methods of sewerage disposal and substructures for pipes.

"(5) Provision of adequate sites for parks and playgrounds and recreation centers and municipal buildings of various sorts.

"(6) Acquisition of adequate land by the city for all public purposes."

This is an interesting statement, not only for its proposal that a city plan be prepared by an existing official body, but for its enumeration of what such a plan might properly include.

In December, 1909, the Mayor of Chicago appointed a Chicago Plan Commission. With its very large membership, however, its function was to be advisory. Buffalo, Seattle, Los Angeles, Newark, N. J., St. Louis and Salem, Mass., are among the representative other cities which have created city plan commissions, made up of local residents. These commissions are designed to act for the most part in an advisory capacity, but generally their membership wisely includes, ex-officio, some members of the city government.

In these cities, and in other cities of the United

States which have not gone so far as to dream of official and permanent plan commissions, the usual course has been to call in, from outside, one or more city planners to study the community's needs and to give advice. These city planners are men, trained sometimes in one profession and sometimes in another, who have specialized on the physical development of cities and towns. They have schooled themselves to see quickly, and to think in big terms, and they are men of imagination with strong practical sympathies. Taking up each problem conscientiously and with fresh interest, they undoubtedly perform for the cities that retain them a service of incalculable value. They offer, in conveniently concentrated form, the central viewpoint; they take, beyond the cavil of petty politics or local interests, the community standpoint; they bring to the particular problem of the particular town a broad, fresh outlook and a knowledge of the experience of other communities. The impetus which they thus give to the city's wise development and bolder public spirit is greater than can be measured; but the reports they make and the pictures they draw have not been as yet, in any large and literal sense, city plans.

The true city plan must be worked out very slowly, on the ground, through a course of many years. It is almost sure to be bettered, at one stage or another, however it is first made, by the suggestion and criticism of outside experts; and it is certain to need, to insure its gradual unfolding in visible reality, a strong, permanent, central control—partly represented by law and partly by the authority of officials. That the making of this city plan, and the subsequent control of it, is no matter to be lightly delegated to any group of untrained individuals, or conveniently existing official

body that has other serious duties to perform, is one of the principles which this book would especially emphasize.

CHAPTER VIII

PLATTING OF MINOR RESIDENCE STREETS IN HIGH CLASS DISTRICTS

RETURNING now to the platting of streets, we may take up again the special problems offered by those of residence neighborhoods—that is to say, having indicated the importance and general character of the main traffic thoroughfares, we are at liberty to resume consideration of minor residence streets. "The streets," said a writer,* when describing the plans for Hellerau, the garden city near Dresden, "conform to the lie of the hills in delicate curves, and present to the architects who will be building here the best opportunity for making charming city pictures. Near the workshops stretches out the quarter occupied by small dwellings, in which the houses belonging to single families are united in groups and rows." In another section, he added, "extensive quarters for country houses are provided."

In a general way this statement puts briefly the ideal of a street layout which might be in the residence portion of any city. It suggests, also, the natural subdivision of the subject into at least two main discussions—one having to do with high class regions, where plats vary in size, but are relatively large; and one having to do with workingmen's districts where the

* Bernard Kampffmeyer, chairman of the German Garden City Association, in *Garden Cities* (England), Dec., 1908.

lot unit is small. Of course between these two extremes there must be, in every city, provision for the great middle class—if that phrase may be used—through which, by steps too gradual for separate observation, the one extreme graduates into the other. But that scarcely demands separate consideration. Just because the progression is so gradual, there is no line that distinctly sets it off, and according as the middle class assumes, in greater or less degree, a likeness to the one extreme or to the other, street and lot arrangement can be appropriately adjusted—since traffic needs are become a minor factor.

The arrangement of the subject as thus proposed is likely, however, to provoke this query: If prettiness and loveliness are to be the attributes of the higher class of residence streets in cities that are wisely planned, is there to be no provision for the stately avenue? All the people who live in costly houses set in spacious grounds will not wish to live on streets that curve, however "delicately," or that rise and fall in conformity with the natural hills and dales. And if this be true of the residents of houses set in gardens it will be true still more of those who are content to do without a garden.

To that query, then, let there be immediate response: The desire to dwell on a stately avenue is just as legitimate, and is just as worthy of consideration in the street platting, as is a preference for quieter streets. But the great avenue must have length to match its breadth, and it must be direct, else it will lack in dignity. It is most naturally developed, therefore, and with greatest frequency, from those main arterial thoroughfares, of which there has been discussion, or from the boulevards and parkways of which we have yet to speak. It tends to be an artery

of travel, and this remains true even though heavy traffic be debarred from using it. For travel in the city makes use of diverse vehicles, and it is not an essential duty of a main channel to accommodate every kind. With the stately avenue, therefore, though it has its important place in the city plan, this chapter need not concern itself. Nor will it fall within the scope of a discussion of those minor streets that are lined with humble homes.

To take up, then, some general rules for platting the minor residence streets in high-class neighborhoods, we may note that "when the main roads have been laid down and the main traffic requirements have been provided for, the spaces left between these through roads can be developed more from the point of view of making the best of the sites for the buildings, and less from the point of view of public convenience."* That is to say, the factors most considered now can be the convenience and pleasure of the persons who live on the streets, so far as there is no violation of reasonable sanitary, building, and fire precautions. At the same time, in making any suggestions, we have to realize that site planning, as distinguished from city planning, cannot be successfully carried out in a very wholesale manner. City planning, by which the main traffic arteries are platted, can be only done comprehensively; but once that is accomplished, there is required a degree of thought, for the problem presented by the individual minor street and residence site, which can hardly be given in sufficient detail when vast urban areas are considered in the mass. If this be true of the single city, it must apply with double force to a discussion in general terms of the problems of all cities. Yet we

* Raymond Unwin in "Town Planning in Practice."

may note certain principles which it is profitable to keep in mind.

The necessity for economy in street construction is one of these. In preceding chapters there has been effort to indicate the far-reaching social importance of this consideration. Here we have to observe that the economy is not a matter only of street width, or of style of pavement, or of other features of street improvement. It may be also a matter of street location. The primary thought in this connection will be regarding the lot subdivision—so to place the streets that they may cut the tract into the largest possible number of the kind, or kinds, of lots most saleable in the sort of development which is contemplated. In a high-class residence section, especially in one picturesquely developed, there will be demand for plats of various sizes. The attractiveness of the plat, its susceptibility to pleasing development, and its relation to its surroundings are factors that determine the area most marketable. There is no special advantage, therefore, in a section of this kind, in establishing a lot unit, for larger plats are not likely to be exact multiples of it nor smaller plats precise divisions of it. Thus we shall do very well, from the financial point of view, in letting plat-lines determine street-lines, instead of making the lot the product of an exact arrangement of streets.

In developing the houselots, even in a section where there are gardens, a certain symmetry of shape will, however, be found desirable. To secure this, the minor streets will have to be platted with reference to the nearest main traffic ways. This seems an unnecessary comment, and yet there are many examples of useful diagonal highways superimposed on a rigid gridiron of minor streets, so creating awkward corners and

unsaleable lots. As Raymond Unwin says:* "That the minor roads in the northwest corner of a town should be parallel with the minor roads in the southeast corner, though it may look pretty on the plan, is a matter having in reality no value whatever; but that the minor roads should have a definite relationship to the secondary or main roads of the framework to which they are adjacent is essential, as much for con-

TWO-LEVEL STREET IN A RESIDENCE SECTION

The beginning of a longitudinal bank that is to separate the two levels of a wide street on a hillside. Picture from a new section of Aix-la-Chapelle.

venience and economy as for securing a satisfactory artistic treatment of the street."

The fact is, briefly, the street planner should approach the problem of the minor street with no predilection in favor of any geometrical system. With a perfectly open mind, he should simply seek the street layout that is most appropriate to the contours, that

* Paper read at the Town Planning Conference, London, 1910.

will most advantageously subdivide the property, and that will give the best connections and best shaped lots on the main highways. He should not approach this problem predisposed to adopt a gridiron, checkerboard, or diagonal system.

There are other matters which make the street's location an economic factor. For instance, there is the question of drainage. Generally, a street which follows the line of natural drainage presents, other things being equal, marked advantages from this point of view. Again, to follow the topography, where this can be done without too great sacrifices in other directions, means a large saving in fills and cuts. Or, in carrying a road along the side of a hill, it often is well so to locate it that there is more of cutting on the one side than there is of filling on the other. This is because the street sewer will probably have to be placed low enough to drain the houses on the low side, and because the houselots on the low side are considered so undesirable that either they must be filled up or high foundation walls must be constructed. As houses on terraced sites are well regarded, there need be less anxiety regarding the lots on the high side of the street than regarding those on the low side. Hence, the change of a street's center line by a very few feet may make a great difference in costs and sales.

Occasionally it is worth while, as the Germans in particular have shown, to confine the house building to the upper side of the street alone. This is on steep hillsides, where construction on the lower side would involve large cost and, as return for the expenditure, would shut out a view and transform into a commonplace thoroughfare a street that had tremendous natural possibilities for beauty. Narrower and more frequent streets on such a site will sometimes be the

method of development at once most economical and effective.

Then there is the two-level street, if the side of the hill be very precipitous. Here a longitudinal bank or retaining wall is introduced in the middle, dividing the street into two levels, as was proposed for the water-front street, so bringing each side of it nearer to the natural surface of the abutting property. Such a street must of course be wider than a single thoroughfare of the same capacity. But the saving of values in the frontage more than compensates for the cost of extra width.

The question of street grades is of more than traffic significance. Though there be wish to follow contours on streets that carry little traffic, though the automobile has robbed the grade of much of its terror, and though the hill site is attractive because of the view and climatic conditions it offers, care must be taken that grades are not too steep for long distances. For one thing, it is not so easy to sell houselots which can be approached only by climbing a very steep hill. For another thing, a street with extremely heavy grade needs more expensive pavement and sewer construction than does one which is not subject to torrential floods, and consequent washouts, after summer showers.

In placing these streets some thought should be given, also, to wind and sun. The home, and its pleasantest and healthiest orientation, is a more important matter on a minor residence street than is the getting of a traveler to a certain point by the shortest route. As to the sun, if there be choice, one should take care not to run a residence street due east and west; or, if so running it, he should try to give the lots a wide frontage, so that important rooms of the

house might have a southern exposure. If the street's location be swerved enough to avoid an exact east and west direction, the sun will reach the north side for a little while, and thus, if the house be detached, will shine at some hour of the day into every window.* As to the wind, care should be taken when practicable not to extend a street for a long distance in exactly the direction of the prevailing winds. A street that serves as a funnel is pleasant neither to live nor travel upon. Düsseldorf, for example, is exposed to strong west winds over the Rhine, and Herr Geusen, Oberbaurat, has said that lately in making changes and clearings it became evident that curious street curves in the old town were deliberately planned to reduce the unpleasantness of the wind storms.

Finally, to preserve or enhance the beauty of the street—a very justifiable purpose, where the object is the building of homes—a slight change here, or a curve there, may save a group of beautiful trees, or a single noble specimen which represents the growth of scores of years. It may preserve a picturesque boulder, which might otherwise have had to be blasted away, or an historic shrine which might otherwise have been sold for junk; or it may suddenly reveal a view that delights or thrills.

It is clear, then, that ever so slight changes of direction may make great differences, in costs of construction, in saleability of lots, and in comfort and pleasure of life on these streets where the accommodation of traffic and the pursuit of business are not important considerations. It is clear also how very essential it is, for good results, that the plans be not made on paper, but on the ground; and that fixed rules, requiring a single solution for every problem, be

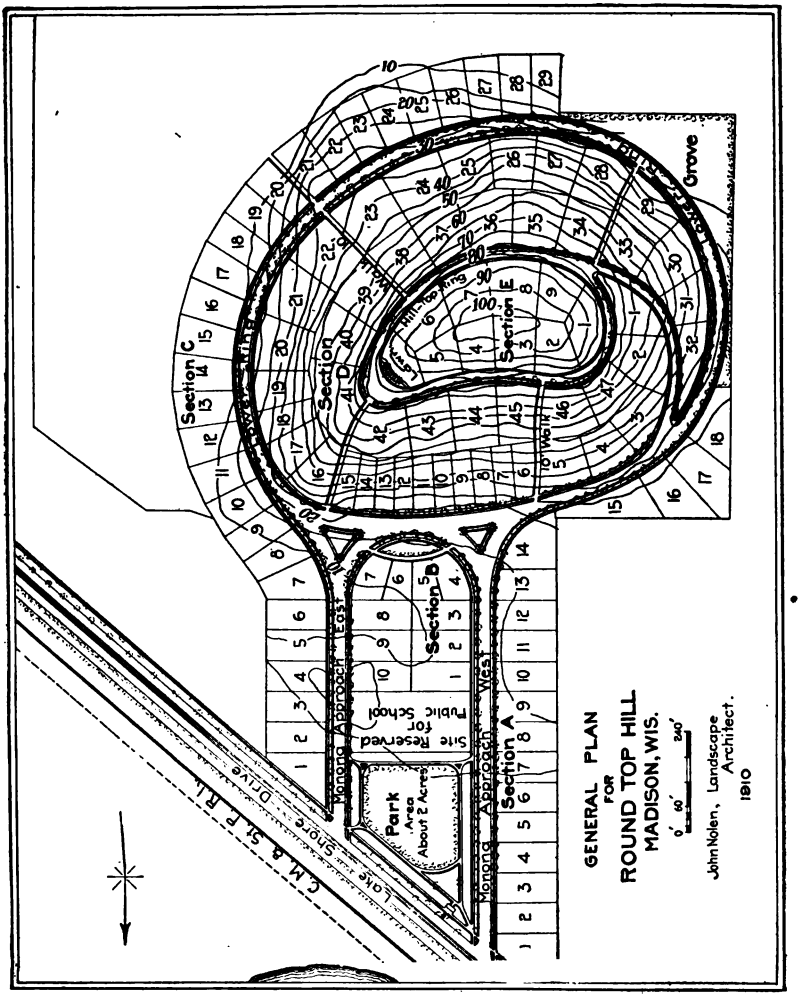
* See footnote on page 135.

avoided. It should be considered, too, that there is little advantage in planning, for districts that have villa development, the geometrical arrangement which looks well in a drawing. The lines disappear, or at least are lost to the eye, amid the natural surroundings. In pleasure over detail, one forgets the general "plan-picture." In the great and much broken spaces, indeed, one finds the "picture" difficult to decipher.

Nelson P. Lewis, who, as Chief Engineer of the Board of Estimate and Apportionment of New York, has had much practical experience in these matters, has written—as if in summary of these considerations: "The interest of the average citizen is not in the map; it is in the street system itself, and it might be preferable to allow these various subdivisions to develop along lines of least resistance, without exercising too much control over them. In fact, if the treatment of these different sections varies, a more pleasing result may be attained. Here, where the topography suggests it, a serpentine system of streets may be laid out; there, a generous depth of lots, with space for gardens and ornamental planting, may be provided."

If some one objects that with so disordered, or at least unsystematic, an arrangement of minor streets, the stranger is likely to lose his way, he may be reassured by the reflection that a short walk in any direction would bring the wanderer to a main thoroughfare. And Cornelius Gurlitt goes so far as to remark that "the finding of one's way in a city quarter is made easier by a diversity in streets and open spaces, two similar open spaces in one city reminding one of those practical jokes that were characteristic of garden designs in the eighteenth century." There is something to be said for that.

Besides hampering picturesque platting, the



FITTING THE PLAN TO THE CONTOURS

This subdivision, made by John Nolen, for Round Top hill, Madison, Wis., illustrates several of the principles advocated in these pages. Note the relation of the residential subdivision to the main highway, the contour roads, the use of footpaths to furnish short cuts, instead of additional streets; the reservation of an outlook point, the variation in the size of lots, the ornamental park spaces at important street intersections, and the location of the school next to the park. It is interesting also to observe that the streets gradually narrow as traffic may be expected to diminish.

straight line loses now even such measure of prestige as directness and shortness give to it where traffic considerations are paramount. Among the homes, the street that curves may often be highly valued. The time has happily passed when there was need to plead for its attractiveness and beauty in such environment. We shall come in time to realize that wherever there must be a bend, not less on main avenue than on minor street, that turn should be a curve and not an angle. We build our streets for the traffic that makes use of them; we see the car tracks sweep around the angle in a curve and the tracks of the wagons describe lines of grace, but because it is a little easier to survey lots in straight lines and angles than in curves, we too often destroy the beauty of a street and the adaptation of its course to the traffic which is upon it, in order to put in the surveyor's hard straight lines and angles. We even go so far as to make rectangular street crossings on hillsides, where the steepness of a slope may make an angle dangerous as well as sharp.

Further, as Dr. Stübben has pointed out, a street ought not to be conducted in a straight line over a summit. The practice imposes the tax of excessive grades. Moreover, convex changes in grade are displeasing to the eye. The reason is that, beyond the summit, buildings, street furnishings, vehicles and people seem to sink. Passing over a high point, Dr. Stübben suggests, should be accomplished "by a bending of the street in plan and profile, the course of which the eye cannot follow beyond the ridge; or by means of breaking off the street at the summit. The interruption may be a vertical or a horizontal one; a vertical one in the form of a monument, a plantation, a fountain or the like which the eye cannot see beyond; a horizontal in the form of a crossing or dispersing

place beyond which the direction of the street changes."

But because a curving street has been discovered to be generally pleasant, we should not make that circumstance an excuse for creating it without a further and practical reason. The deliberately manufactured ornament that serves no functional purpose does not please. In the curving of our streets, we must take care that we are beautifying construction and not making an attempt to construct beauty. As we all know, that is a primary lesson in art and good taste.

The curving street, or any irregularity of platting, is likely to leave at intersections some small spaces, gores or segments, that are not suitable for building purposes. These can be put to best use as additions to street area, or as small park spaces, for the beautifying of the neighborhood. In a high-class district, where attractiveness of environment is popularly demanded, these opportunities will not be overlooked, and may even be purposely created. Their naturalness, as a development of the street plan, and the intimacy with which they enter into it, are not, indeed, the least of the merits of informal and picturesque street platting in residential neighborhoods.

Of course, one would not deliberately set out to create the charm of the unexpected, such as seen in the narrow streets, the curving façades, even the unexpected turns—"the atmosphere, the quaintness, the sudden respite from the wearying strenuous life"—with which an old world city sometimes so delights explorers. But we shall find that if we go lovingly, freely and joyously about our task of designing streets in which men are to build their homes away from the thralldom of business, and where children are to play, we shall somehow create that very charm, that very

atmosphere. More than half a century ago, A. J. Downing, stumbling on an example of this sort of street platting—happily, it is much commoner now than then—wrote of it: "The whole of this neighborhood of Brookline is a kind of landscape garden, and there is nothing in America of the sort so inexpressibly charming as the lanes which lead from one cottage, or villa, to another. . . . These lanes are clothed with a profusion of trees and wild shrubbery, often almost to the carriage tracks, and curve and wind about."

A Quiet Residence Section Near a Big City
A lane in Brookline, Mass.

Familiar examples have convinced us now. And as there is danger that the curving street, which must be so strongly advocated in writing of the development of residence tracts, may be overdone, so there is danger that the picturesque will be attempted on a matter-of-fact site, the lovely and informal on an unlovely tract, too small to give to the designer the

necessary scope. There is need of spaciousness, of proportion, of verdure, quiet and natural appropriateness. Any flat and vacant field will not serve for the sort of street beauty that may properly be given to rolling land. In the past, we have erred too much the other way—ruining the naturally picturesque, at great cost leveling hills and filling valleys, that we might transfer to a beautiful tract the plainness of the plain. There is need of a protest against doing that, and at the same time need of a warning, lest we should go to the opposite extreme. Only by taking the home motif, and adjusting our development to the conditions of the site, may we hope to avoid both errors.

CHAPTER IX

THE DEVELOPMENT OF HIGH CLASS MINOR STREETS

To secure economy, picturesqueness and real convenience, in the streets of neighborhoods that are

A new type of minor residence street in a high-class section. This is a public street (in Rochester, N. Y.) but it is short, indirect, and so located that it will never be a thoroughfare. Note its inexpensive construction, that one sidewalk serves, that it makes no inharmonious break in the garden-like setting of the homes, and wastes no ground in needless street space.

strictly residential, and to satisfy the widely divergent tastes of those who dwell there—so far as those tastes

may be safely humored—more is needed than simply a laxity of requirement as to the street's exact location and alignment. There must be considerable freedom as to their development. Only in this way can each be fitted adequately to its needs; only thus can standardization be prevented from casting its costly and deadening blight upon them. With that cost, exacted of tenant and owner, this chapter is not concerned. Nor, since the goal is nice adjustment of means to end, can there be indication of the most desirable street widths with much more assurance and certainty than that with which it was possible to suggest ideal location. Yet some notes may help a little.

It may be remembered that Mr. Unwin was quoted as remarking that many a minor residence street has a smaller amount of wheel traffic than that which is comfortably accommodated on the thirteen to twenty-foot carriage drives that serve such mansions as Chatsworth and Blenheim. J. Ernest Jarratt, an official of Southport, England, has seconded this judgment when saying, in a study of Southport's possibilities, "Purely residential streets, which can scarcely conceivably become arterial thoroughfares, might partake more of the nature of dignified carriage drives." And an American engineer, John W. Alvord, has reiterated it again, in so serious a document as a report on "The Street Paving Problem of Chicago," which he rendered to the paving committee of the Chicago Commercial Club.* He put the suggestion in this way: "In the ideally paved city, the unfrequented residence streets," carrying a traffic ranging "from nothing to five tons per day," would have "not more than eighteen to twenty-four feet between curbs."

* 1904.

It should be noted, with reference to these figures, that on a street twenty-four feet wide an ordinary vehicle can turn without serious inconvenience, and that there is space for carriages to stop on both sides of the road without blocking progress. Thus that

By courtesy of Roland Park Co., Baltimore

STREET WITH TURN AT THE END

width should be sufficient even for streets which have a good deal of travel. Indeed, Mr. Alvord's report suggests that often it would be worth while to reduce the roadway to the minimum width, arranging in the

center of each block the wider space in which vehicles could turn. Incidentally, such a variation in alignment would introduce a pleasant variety, where straight lines are not particularly desirable; and it would facilitate an interesting placing of houses, that would be as attractive in the vista of street and lawn opened to those who dwelt in them as the exterior architectural opportunity would be alluring to the designer. In Hampstead Garden Suburb, the company having secured a special act of Parliament permitting the construction of roads only twenty feet wide (providing they did not exceed 500 feet in length and that the distance between the houses on the two sides was not less than fifty feet) such a street is given a turning place at the end. This might be done more often; and there may be reflection that in these days of the automobile there is no hardship, and hardly a perceptible waste of time, in going to the corner, or around the block to turn. As far as the traffic is concerned, therefore, it appears that on strictly minor residence streets a roadway need almost never be more than twenty-four feet in width, and can most often be considerably less. If it be thus narrow and have a substantial, smooth pavement it generally will not be necessary to put any space into gutter. The distance between curbs is narrowed, to be sure, but the whole of it is available roadway.

On those occasions where consideration of future possibilities must make advisable a provision of wider road-space than the light present travel needs, and where there still is wish to keep down the cost of development, it sometimes may be possible to utilize a little space on each side as a grass gutter. This will be more attractive than stone, brick, or concrete. But to be successful, the street must not have much slope,

and the traffic must be of a kind that will be too considerate to trespass on the grass edge. Given these conditions, a slight depression in the grass plat, which for this purpose is made wider than the normal gutter, will very well, and very pleasingly, carry the storm water to the sewer inlet.

Since street width is usually more than roadway and gutter width, we have yet to ask ourselves regarding sidewalks and their margins. As narrow streets were superseded by broad highways, the contracted walk that had been crowded between curb and wall, gave way to a wide sidewalk space. In American cities at least, this was early paved to a breadth of ten or twelve feet, or more. Now this in its turn is giving way, in high-class residence districts, to grass-bordered and comparatively narrow granolithic or cement walks. The change may be considered indicative of an accepted judgment based on the economy and superior attractiveness of the narrow walk with margins.

The paved part of the walk thus constructed is usually, and most acceptably on minor streets, five or six feet in width. The margins vary greatly. If the street be fifty feet or sixty feet wide they are perhaps most pleasantly of a breadth that brings the total distance from curb to lot line up to one-half the width of the roadway, with the walk placed a foot from the property line. The proportions of sides and center space thus become 1:2:1. On a fifty-foot street, we thus have a twenty-five foot roadway, and six-foot margins for grass between the paved walk and the curb; on a sixty-foot street, we have, or could have, a thirty-foot roadway and nine-foot margins. Less roadway and more margin would of course look better. When a minor residence street is more than sixty feet

wide, it ought to receive special treatment, either by center parking or by such emphasis of the side parking as to change the proportions. If, however, the street is narrow—say, forty feet or less between the property lines—and carries a roadway and double sidewalks, it is best not to anticipate an aesthetic contribution by the margin. A roadway of eighteen

A GRASS BORDER PLANTED WITH SHRUBS

A street in Rochester, N. Y. The whole street is beautified in this way. Uniform care of the planting is provided by the co-operative action of the residents.

feet and the five-foot paved walks, (both close to minimum proportions), would leave the margins too narrow for trees or for good care. In such cases the trees would best be placed on the property line.

The margin between paved walk and curb may have a development as varied as its width. It may

A CONTRAST IN WALK LOCATION

On this street (in Toronto, Canada) the houses on either side stand back about an equal distance from the curb. On the one side the grass margin is between walk and curb; on the other between walk and houselots. As a result the street is very unsymmetrical, but the striking contrast is valuable for illustration purposes.

HOW A PRIVATE DRIVEWAY BREAKS THE LEVEL OF THE WALK, WHEN WALK IS NEXT TO CURB

be earth, gravel, or turf—the latter most pleasing when given care. Very often in the margin trees are

planted; but it were best not to attempt them with any uniformity when margins are less than six feet wide. The grass borders are sometimes further planted with flowers and shrubs, and in Germany vines are not infrequently looped from tree to tree. Thus the

A WALK AT HIGHER LEVEL THAN THE ROAD

margin may be of considerable width, and may serve as an ornamental feature. In fact, its value in this respect is often deemed such as to justify a generous broadening of the minor street.*

* Occasionally one finds such a walk laid next to the curb, with the margin of grass transposed so as to come between the walk and lot. This is so poor an arrangement, however, that it is quite rare. There is an aesthetic loss which is obvious to any one who compares the two kinds of development; but aside from that consideration, the location of a narrow walk directly next to the curb leaves the pedestrian with no protecting barrier from spattering mud and dust, and when—as so often in American cities—the front gardens are unfenced, the arrange-

For all the pleasantness of these arrangements, however, we may well ask ourselves, considering how greatly private property is to contribute to the beauty of the street, considering the advantage of economy in the public work, and the diversity of country to be developed, whether there is any reason why there should invariably be two sidewalks. We may even ask whether, when the roadway is adequately drained and

A SIDEWALK ON ONE SIDE ONLY

The residents as well served, the street more attractive and less expensive.

so paved as to be not less dry than a walk, there may not be spaces where a separate walk might be dispensed with altogether.

It is significant that in the high-class villa colony

ment seems to subtract from public property in order to add to private. Other objections are that fire hydrants, lamp posts, hitching posts, telegraph poles, etc., which normally would be in the margin, now obstruct the walk—seriously if it be narrow; and that private driveways, unable to rise abruptly from the level of the gutter to that of the sidewalk, have to be carried across the walk, partly at least, in a depression.

of Grünewald, Berlin, and in some of the fashionable suburbs of Dresden and other cities, there are many streets that have no paved sidewalks. In the new Garden cities and Garden suburbs, such as Hampstead, they are very frequently omitted. In one of the attractive streets of a high-priced residence section of Toronto the author has observed that certain streets have a sidewalk on only one side, though there are houses on both sides; and there is a pleasant and con-

WHERE THERE IS LITTLE WALKING ONE SIDEWALK MAY BE ENOUGH
An unusual development for a long street.

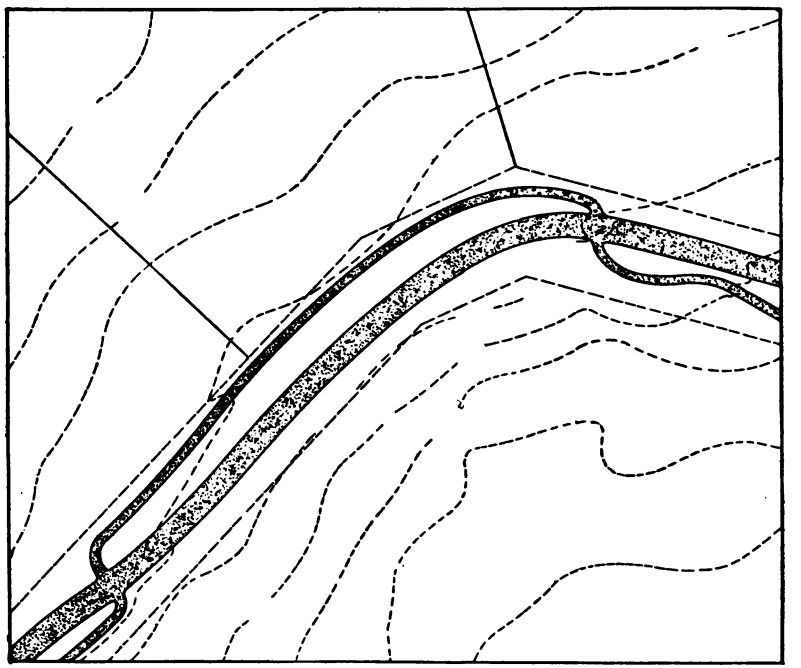
siderable portion of Northampton, Mass.—to cite one of the smaller American cities—in which the streets are developed in this way. In many city squares and small parks, traversed by a much heavier pedestrian travel than one would find on a minor residence street, the walks are not nearly so well drained or substantially constructed as is a macadam or gravel roadway.

Have we not unconsciously standardized the form of the street as well as its width; have we not followed

By courtesy of Roland Park Co., Baltimore

The value of an elevated sidewalk in reducing the cost of street construction and in making available lots which are high above the street level.

blindly the example of the business streets and leading avenues when requiring two paved and equal sidewalks? If the roadway space which must be reserved for the occasional, but infrequent, vehicle will serve the purposes of sidewalks, we may not only, by its use for pedestrians, save some street width—thereby



SIDEWALK INFORMALITY

Note how the walk changes from one side to the other of the roadway, and varies in distance from it. (Section from the plat of Treeholme Park, a high-class residence district, Chappaqua, N. Y., Charles Downing Lay, landscape architect.)

adding something to front gardens—and save some cost for construction, and a constant care, but we shall gain thereby a more attractive roadway, with garden borders and well nourished trees.

Where we do have walks, we have learned, or are learning, that we need not always be as careful with regard to grades as in the platting of the roadways. On irregular ground, for instance, if the street be a cut, we may reduce our cross-section by letting the walk take a higher level than the roadway, and so seemingly bring the houselots nearer to street grade. In this economical procedure, we find that on a minor street we are actually adding to the street's pleasing informality. Thus, it may be said that there is a slowly growing tendency to depart from the theory that walks and roadway always go together—a theory easy to explain if we consider the sidewalk's historical origin: how at first it was simply a space laid off from the road so that, with the increase of traffic through narrow streets, the pedestrian might be safe.

But we need to break away from custom more than we have. In so doing, we would discover, no doubt, many an occasion when a street might be dispensed with altogether and a footpath made instead. Let us imagine, for example, that in platting a certain hillside for high-class residential development we found it advisable to have two parallel streets, A and B, along the face of the hill at different levels. The bulk of the travel is on the line of these streets, but as the houses are detached and the region stands apart from main traffic channels, the volume of travel is at best very little. The usual method of platting would require cross streets connecting A and B at intervals of possibly four hundred and fifty feet—the Liverpool standard! These connections would be steep. We should have both an unsatisfactory and costly provision for exceedingly little traffic, for we may even fancy that the long gardens on the upper side of A run back to meet the long gardens on the lower side of B, so that

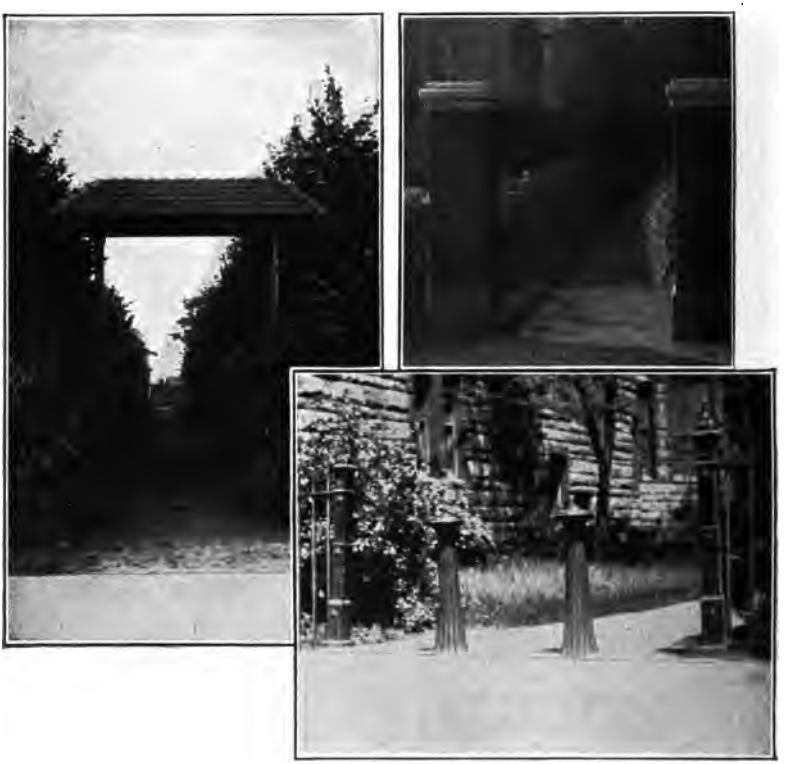
no houses front on the cross streets. If we put our connecting cross streets twice as far apart, pedestrians would complain, more or less justly, of the length of the trip from A to B.

Suppose, then, that every other cross street in this particular development be narrowed to a footpath. Would not the arrangement serve the convenience of the people exactly as well? For consider: If a person on street A desires to reach a house on street B and would be taken out of his way if sent the distance of an extra block before finding a connection, it is clear that the house he wants on B is in the corresponding block of that street. The chances, therefore, are very many that he plans to walk there. If so, the footpath is all he needs. But if he is driving, the additional block will surely not fatigue him, or take enough extra time, gasoline, horseflesh, or electricity to justify the building of a street.

The condition imagined is a very simple one. In developing real areas the opportunity would arise in many ways. And how delightful a feature of city and town development these footpaths between the gardens of a residence district might become! One gets a hint of them in the way some streets are carried across the promenades in Frankfort-on-Main, and in the cross cuts that may be found in Cambridge, Mass. Even the paths that cross Boston Common, in the midst of a business section where there is great vehicular traffic, give in exaggerated form a suggestion of the convenience of the footpath.

Sometimes there might be an ornamental open gateway to mark the entrance to the public path; but most often, doubtless, it would be distinguished simply by the stone, iron, or concrete posts that are the familiar barrier to vehicles. The style of these might

be standardized, and they might bear the city's arms to indicate that the way is public. The paths would give a restful, rural charm to a neighborhood, along with their complete convenience, their economy and their practicability. With reference to the latter



How Footpath Entrances Might be Marked

quality, their usefulness would be especially marked in rough country, when—if there were only pedestrians to consider—steps might often be made use of, to a heightening of picturesqueness, a shortening of distance, and the avoidance of disagreeably steep inclines.

ECONOMY OF THE FOOTPATH IF THE GROUND SLOPE ABRUPTLY

Two views from Krupp Colonies near Essen. From the terrace in the upper picture steps descend to the level of the street.

If we imagine houses fronting on a street that had been narrowed to a footpath, as they well might when the distance is not so great as to make such platting inadvisable, there should be a service road at the rear. This, of course, would be narrow and inexpensively developed, so that the footpath in front, plus half of the service road that would be back of the tier of lots on each side of the footpath, would still represent a substantial saving—though only the economic aspects of the question be considered. The service roads would be needed in case of fire, sickness, building operations, or for the delivery of heavy articles—as household goods and coal. They would also serve to carry some of the public utilities, for which footpaths might not allow sufficient space. But the service roads, at worst, would not be conspicuous.

By these means, then, might we not create, very simply and practically, a *rus in urbe* of a most serviceable kind—even a Garden city for the well-to-do and middle class whom, when all is said and done, the city still contains in generous number? Among villas with considerable grounds on sites of picturesque and irregular topography, the people surely would thus be served as well, at lower cost, and the region rendered more parklike and attractive.*

* *Municipal Journal and Engineer*, January 19, 1910, gave the following account of a town in Southern California having somewhat such a street plan: "Perhaps the most striking difference between this and ordinary residence villages is the construction of certain streets without any roadways whatever, the space which would ordinarily be so occupied containing merely a wide sidewalk, between which and the houses extend wide lawns. This relieves the houses of the dust and noise of wheel traffic and affords the children a perfectly safe playground. Such vehicles as are necessary for delivering household provisions use twenty-foot alleys which alternate with the roadless streets, passing in the rear of the houses and connecting with a commercial street which parallels the waterfront. The roadless street is forty feet wide from building

In the development of residential neighborhoods, we usually need, in short, to get away from the stereotyped and formal. Our main traffic lines have freed us from the rules, restrictions and system which traffic imposes; and the regulation determining the space which must be left open between the fronts of the opposite houses has given us liberty to leave as much of this space in private, and as little in public, ownership as may be most convenient. Thus we can have a sidewalk or omit a sidewalk, just as is best fitted to the conditions of the particular street; we can have a footway instead of a street if we prefer, or a road without a footway if that be better. If we have a walk, there may or may not be its like on the other side of the roadway, it may or may not follow the grade of the road; the margins that border it may be narrow or broad, they may be planted with grass and adorned with flowers and shrubs or left in earth, or covered with gravel; and the street itself may vary from the location and direction which an exactness of measured platting would suggest. Our purpose is not a regular scheme, but comfort, peace and beauty, and the sense of the freedom of home.

Lest this seem to countenance a *laissez faire* procedure, let there again be reminder that there is assumed a central authority charged with the task of deciding these matters from the standpoint of community welfare. It is not proposed that every tract developer shall do as he pleases. The creation of a town planning procedure should commend itself to large owners of real estate, if for no other reason than

line to building line, and the sidewalk, which passes through the middle of it, is twelve feet wide. . . . The plan has been adopted for about thirty blocks, extending for a distance of almost two miles along the oceanfront.''

ENTRANCE TO VANDEVENTER PLACE, ST. LOUIS

The gates at the sides are for pedestrians and the center entrance is the driveway. Inside the gateway the drive divides, the fountain being at the end of a broad strip of center parking with narrow carriage drives on either side. Note the exclusiveness and privacy of the arrangement.

that through this method alone may they hope for freedom from the bondage of uniform rules in tract development.

Before leaving the residence district, there must be recognition of the occasional demand for that retired and quiet formalism and stateliness which neither picturesqueness nor a flamboyant avenue could satisfy. To meet this need which is worthy and genuine, even though it be limited, two types of development have been designed. Each purposes to give to groups of costly houses a dignified and imposing setting.

One is to be found in the creation of semi-private "places," usually about a block in length, and often having their entrances marked by imposing gateways—Vandeventer Place, St. Louis, is a well-known example. They resemble short sections of avenue in the great space between the houses on either side and they may even outdo it in the elaborateness of the street adornment. On the other hand, they are unlike avenues in the peace and seclusion of their aloofness and their consequently narrow roadways. A street of this kind may, indeed, offer connection between important parallel traffic routes that cross its ends at right angles, but it is not itself in the direct line of travel and often is closed to general traffic. With all its spaciousness and pretension, its traffic significance is that of a "minor residence street."

The second form of development is that of the quiet tree-planted square, or other open space, around which the houses stand in orderly rows—retired from streams of travel and impressively set off. Great landlords have placed on the map of London many examples of this arrangement; Penn adopted it in his plan for Philadelphia, and there are many scattered examples.

Either development requires a level site, and, in proportion to the whole population of the city, the number of persons who will seek homes on plats thus developed is comparatively small. For the schemes require the withdrawal from market of an amount of land which is relatively large, as regards the total development; and this means that the marketed portions have to be sold at prices so high as to cover, between them, the cost of the land withheld. In addition to this cost, there is usually a heavy expenditure for landscape work, sometimes for architectural construction, and annually for upkeep. And not only are the home plats located in either one of these ways expensive, but the effectiveness of the plans requires that the sales be made under unusually stringent restrictions. The result is that the residential place or square, exceedingly attractive as is its contribution to the diversification of city street systems, cannot be considered as a general or normal type. Indeed, one of its claims to charm is its unusualness. As soon as it is overdone—as the semi-private place has been sadly overdone in real estate promotion around Los Angeles, for instance—it becomes wearisome and displeasing.

CHAPTER X

THE PLATTING OF MINOR STREETS FOR HUMBLE HOMES

If economy, light, and air are important considerations in platting the streets where the wealthy are to live, they must be factors of special influence when we come to the planning of streets on which those live who are not able to supplement by private purchase what the city fails to give. There is now injected, also, a new economic factor, with great urgency. This arises from the anomaly well expressed by J. S. Nettlefold* when he wrote: "In the vast majority of cases, poor people live on dear land and rich people live on cheap land."

The condition may be absurd, as he declared it to be; but it is quite explicable, since land in cities receives its main value from the human use to which it is, or is believed likely to be, put. The land that is to accommodate a great many human beings to the acre can hardly fail to be expensive. In fact, when we would set bounds to its cost, do we not put a limit to the number of persons who can live upon it? To do this, indeed, is one of the objects of the zone system. Yet as the poor can at best occupy but little land apiece, we cannot make it really cheap. The most we can do is to see that the poor man receives the maximum of comfort and happiness from such land as may be his, through lease or purchase.

* "Practical Housing."

In saying this, it may seem that considerations of human welfare are regarded above those of property. It is quite right in planning cities that they should be earnestly heeded. Indeed, in the platting of the quarters where the poor are to live, these considerations have such importance to the whole community that regard for the public health, convenience, and comfort—that is to say, for the best practicable livableness—may properly be required by the street planning authority. It happens, however, that the course which is socially reasonable in the housing of the poor, is also economic.

The difference between the problems offered in platting streets in high-class residence sections and those which must be met in platting them for humble homes is fundamental. In the first instance, the enlargement of private ownership and the curtailment of public is desirable, for it is realized that self interest, if coupled with ample means, will afford attractive and intelligent development. In the second, the reduction of the need of private ownership to a minimum, in order that the necessities of private economy may not involve too great a civic loss, and the maximum provision by the community, so far as it can afford to do so, of those advantages which normally come from private ownership, is the desideratum. Instead of small public provision and large lots, we now seek, theoretically, large public provision and small lots. That the most advantageous use of the considerable public land will not prove to be in the building of streets alone, does not invalidate this claim.

In theory there is thus a reversal of policy. But the theory that in its poorer quarters the city should supply those playgrounds, gardens, and neighborhood amenities which, in a region of wealthier citizens,

might be left to private provision, is qualified by the clause, "so far as it can afford to do so." Taxation of various form puts the cost of such benefits upon the neighborhood that enjoys them. Thus under the economic conditional the theory often in practice breaks down. Just as, in considering the platting of streets in neighborhoods for the well-to-do, it was observed that sometimes streets are given excessive width, in order that their attractiveness may be enhanced—the community assuming some of the task which theoretically might there be left to individual property owners; so, among the humble homes, the need for municipal economy sometimes results in a minimum acquirement of public property, where in theory the maximum would be desirable. It should be noted, also, that a factor of considerable practical moment is that of political influence. Rich citizens may secure the doing of some things by the city which it would not otherwise do and which there is no real need of its doing. On the contrary, poor citizens, because unfamiliar with modes of political pressure, may fail to secure at public cost some of the "improvements" they ought to have. Nevertheless, the theory, if we recognize the possibility, and probability, of numerous exceptions, is a useful guide.

How genuine the need is of an appropriately proportioned small lot, and how serious may be the consequence of failure to provide it, can be gathered from the fact that the tenement house evils of New York are attributed largely to the use of the standard 25 x 100 foot lot. Social workers have dubbed it the curse of the city. Not that there would have been no tenements had the lots been less deep. Tenements are inevitable on Manhattan—even for the very well-to-do—but shallower lots would have robbed the New

York tenement of some of its worst features. We find this illustrated again, in the case of Washington, where the President's Homes Commission, and C. F. Weller in "Neglected Neighbors," have pointed out that one of the greatest advantages to be gained by the transformation of blind alleys into secondary streets is that the size of the blocks would be cut down. The two examples are significant. The one illustrates the responsibility of the long lot for the dumbbell tenement, under conditions of excessive congestion; in the other, the evil which developed, under less serious pressure, was the construction of rear houses. The point of the illustrations is that the adjustment of the lot to the need is not a matter of satisfying simply a whim. When one deals with those who must count the cost of every pleasure and comfort, he finds that what is generally to their convenience is likely to be pretty close to the bedrock of their necessity.

Granted the requirement of a small lot-unit, as distinguished from the serviceability of large lots of irregular size and shape in the higher class districts, we shall naturally find street-platting determined by lot-platting to much greater extent, under ideal conditions, than in the higher class districts. We shall find also that, where the opportunity is given for choice, the tract developed for humble homes is likely to be approximately level. This is not, of course, that the laborer is unappreciative of natural beauty. Economy is the impelling force. It is much cheaper to build streets, and houses too, on a nearly level tract than on irregular contours. Moreover, transportation lines will sooner penetrate such districts.

But with this said, it will be found that various principles which were expected to be useful guides in the development of high-class districts may yet be

helpful. The economy that may be secured by a slight change in the street line is much more desirable now, if it does not mean added cost in some other direction—as in the lot. The lessened traffic needs which permit a narrowing of roadways is even more marked, since now the private and pleasure vehicles are eliminated. The possibility of sidewalk saving—either by its omission altogether, or by the building of one walk instead of two—becomes here so plain as to be less often overlooked. If the country be undulating, the reduction of expense by causing streets to follow the contour within reasonable limits, instead of adopting the railroad grades that engineers esteem, is also an economy that both sections alike may wisely seek as regards their minor streets. Finally, the orientation that gives the maximum of sunlight is changed from a merely desirable to a needful consideration.*

Differences in platting and development, as contrasted with high-class sections, rather than likenesses, are what now concern us. We have seen that the lot-unit is small when homes are humble, and that, as a result, the community must furnish some of those things which private property can give where lots are

* M. A. Augustin Rey, one of the official architects of Paris, has made an elaborate series of astronomical studies to determine the most desirable directions for residence streets as regards sunlight. Taking December 21st, the shortest day of the year, and making observations for Paris, London, and Berlin, as representing Europe; and for New York, Philadelphia, Washington, Boston, and Chicago, as representing America; and basing his calculations on two-story, four-story and six-story buildings, he concludes: "Streets running north and south are eminently healthy; streets at an angle of 30 degrees to a line drawn north and south are healthy; streets inclined at an angle of 45 degrees to the line drawn north and south are moderately healthy; streets running east and west are notoriously not healthy." It hardly need be added that street direction becomes less important, from this point of view, as space between the houses increases.

large. For example, Professor Dewsnup, in discussing "The Housing Problem in England," has said: "The haphazard huddling together of streets and houses must be prevented. Whatever the detailed nature of such a plan may be, it must provide for a thoroughly ventilated street system and an adequate supply of open spaces." With open spaces other than those of the broad street, this chapter will not deal. But what the broad street can give to the minor street it must consider.

The statement has already been made that the latter is likely always, under good town planning, to be near a main highway. When reference is to the minor street of humble homes, it is almost essential that it be near one. Several matters emphasize this need. One is the value of the highway in ventilating the system of narrow streets. Another is the consideration that the workman who is poorly paid, or has long hours, can live only where it is possible for him to get to and from his work quickly and cheaply. This makes proximity to a traffic artery an economic necessity, except in those cases where the establishment of the factory in the suburbs has made the employee comparatively independent of transportation into and out of town. A third advantage of proximity to a main traffic way is social.

The life of a busy street is an unfailing source of entertainment. Not only will the cheaper theatres and picture shows be gathered on the main highway of travel; but the street itself, with its restless crowds, its bright windows, its exciting episodes and commercial opportunities, offers without charge an attraction so well suited to those whom purchasable pleasures have not surfeited that there are few vacant rooms on such a street. For residence, its advantages

seem to such persons, even after deductions for noise, danger to children, and usually inferior living accommodations, to outweigh oftentimes the claims of the quiet street. To the class of persons under consideration, the busy street indeed typifies the lure of the town. To put their homes out of convenient reach of it were to demand an unreasonable sacrifice. In this connection, it may be said of the poor in every city, as it is said of all classes of Parisians, that the street is to them another room. For at least half the year, even in northern latitudes, the occupants of humble homes spend the hours of recreation out-of-doors. As it was put not long ago in a report on housing conditions in Chicago, "The streets and alleys are to the people of a well-to-do district only a convenience for transit. In an overcrowded district there is little else more important to the happiness and welfare of the people."

Aside from the pleasure which the broad street may bring to socially hungry lives, craving distraction from the narrow round of oppressive duty, there can be little doubt that the contact which it offers with the outer world, with the joyous larger life of the community, is an admirable antidote for pettiness and sulky introspective brooding. It is because streets are so largely depended upon to furnish light, air, playspace for children, entertainment and diversion, that they have been so often made broader than the traffic required, in spite of the economic sacrifice involved. For these reasons well-meaning persons have acquiesced and even rejoiced in an action which costs tenants dearly.

But tenement quarters on a wide street are not a correct social or civic ideal. We must try to provide

the individual home on a more livable street.* In so doing, however, we must recognize the good qualities of the street which is necessarily broad, and seek to secure these advantages for humble homes by putting the homes near the highway. It is not, in any large measure, possible, nor happily is it necessary, that they be upon it. Further, we can obviate multiplication of excessively broad streets by furnishing some of their advantages in other ways.

To considerable extent, this will be by means of the parks, playgrounds and other public open spaces. Another chapter will speak of them. But to considerable extent also these advantages are furnished by the courts and little gardens which narrower streets permit or create. The father's dooryard is a much safer playground for small children than is the busy highway; in the tending of flowers and vegetables there is wholesomer diversion and exercise than in patrolling the garish street; the doorstep is a better place for visiting than is the corner; and in the garden there are even opportunities of a financial nature which are surprising. If the life of the highway be not too distant, and in platting streets for workers it must never be far away, the home on the minor street can be made very inviting, when given a little garden.

It is to be remembered that the individual home—of which the garden is a true part—is the civic as well as the social ideal. "It should be recognized at the

* Interesting, as a striking evidence of appreciation of this fact, is a resolution adopted as long ago as 1898 by the Town Council of Düsseldorf. In effect, it provides that on streets upon which the owners agree to erect only detached or semi-detached dwellings, having not more than one story above the ground floor, the contribution to the public sewers will be reduced by one-half; the street will be narrowed; and toward the cost of making the street the builders will have to pay only the cost of macadamizing.

outset," says Lawrence Veiller,* in a comment which applies to other nations as well as to America, "that the normal method of housing the working population in our American cities is in small houses, each house occupied by a separate family, often with a small bit of land, with privacy for all and with a sense of individuality and opportunity for real domestic life. Under no other method can we expect American institutions to be maintained." Charles Booth, in his "Life and Labour in London," summarizes as follows the reports of his London investigators with reference to gardens: "Houses with good gardens at back, seldom empty and hard to get;" "houses blessed with gardens—a wonderful influence;" "houses with porches creeper-covered, eagerly tenanted." And John Burns, speaking of the English town-planning act, has said, "I trust that the chief benefits of this act will be fewer houses per acre, more space and gardens about the dwellings, more attractive frontages."

Yet, in spite of the value of these testimonies, we find James Cornes† declaring that workmen who live in towns care little for gardens, preferring the relaxations and life of the city; and the theory of city planning favoring a small lot-unit for humble homes. The truth is, in catering to people who can spare little money for luxuries and none for things they do not want, it is easy for garden enthusiasm to lead the street platter too far. The sixth of an acre lots at Bournville are too large as a standard. Ebenezer Howard, suggesting lots only twenty feet wide, ran them back one hundred and thirty-two feet, which would make sixteen to the acre. But, in fact, to standardize gardens is not much more reasonable—though

* "Housing Reform."

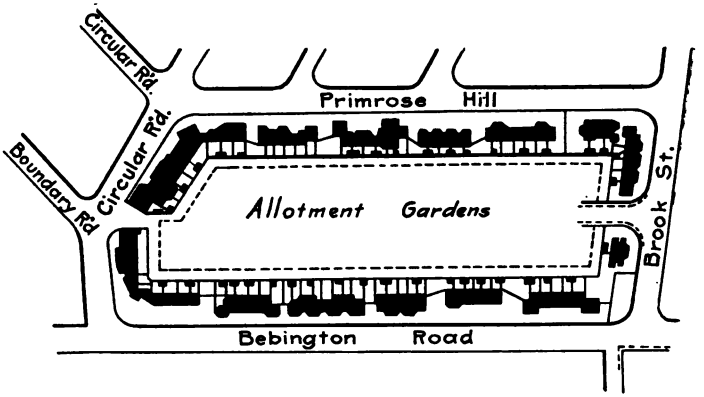
† "Modern Housing in Town and Country."

more excusable—than it would be to standardize houses. Many a well intentioned philanthropist, convinced of the social, hygienic and financial value of the garden, and aware that there are employees who are able to work joyously and successfully a considerable garden area, after platting a tract for humble homes with narrow streets and long gardens, has found he made a mistake. In such cases the garden space connected with some of the houses is sure to be worse than wasted; and the occupants of those houses are compelled to do without some things they want, in order to have what the philanthropic tract developer thought they ought to want.

There is need of discriminating between the diverse home requirements of different groups of workers. Store clerks, bookkeepers, stenographers, etc., are likely to find in the excuse for exercise that a garden offers just the physical antidote which the exactions of their calling demand. But they do not usually live on the humblest streets. On the other hand, men who do, after hard physical exertion all day, return at night too weary of body to work in a garden. Hence, since it can be seldom foreseen that every worker on a given street will perform a certain kind of labor, arises the folly of asserting that every householder shall or shall not have a considerable garden. Let us substitute "may" for shall.

Allotment gardens, now so popular in England and Germany, offer a way out of the predicament. By preserving for allotments a strip in the middle of certain blocks, behind the houses, it is possible to make the backyards of those blocks as small as the usual city-bred worker could desire or find to his advantage. Then the man who wishes more garden than the backyard offers can have it, by means of an allotment

garden. And it will be as near his house as if it had not been set off from his backyard. He can have as much as he can pay for, or profitably work, and no one is compelled to pay for space he does not want. This form of development has been adopted in various places—Harborne, England, is a good illustration; and it is very much to be preferred to that earlier form which put all the allotment gardens by themselves, at a place which consequently was more or less remote from the workmen's homes.



ALLOTMENT GARDENS IN THE MIDDLE OF A BLOCK
A section from the plat of Port Sunlight, England.

When the private back garden is reduced as suggested, it is especially desirable to establish not only a front building line, but also a back one. Certainly this will be true wherever shallow lots have not allotment gardens, or other reserved public space, behind them.

The importance has been dwelt upon of a small lot-unit for the humble home. The problem, as stated at the beginning of the chapter, is to make a minimum of space yield a maximum of comfort and pleasure. As long as we deal with one-family houses that stand in

small gardens, even though the houses be built in short continuous rows, or groups, and contemplate the possibility that some occupants may add to their quota of garden space by renting allotments, the problem is pleasant and easy. But as land area per capita decreases, the cottage merges into the tenement.

In making shallow lots and narrow streets we do something to put off the evil day and even to discourage tenement building; nor is this, happily, quite all that can be done. As the time for the tenement is seen to draw near, it can be yet further warded off by grouping cottages. There are two ways of doing this: several small houses may be combined, so forming a large architectural unit. This has the incidental but considerable aesthetic advantage of avoiding the repetition of many small units, and makes it possible to render the construction along the side of a street of humble homes commensurate in scale with the proportions of the street—as it hardly can be when the unit is a small, perhaps single-story, detached cottage. The other way is to take a hint from college quadrangles and cathedral closes. In this case some of the reserved land in the rear may be absorbed and the houses built in continuous rows around three sides of a small court, or yard, of which the fourth side is the street. By this means a small front garden space will serve all the families in all the houses that look out upon it; it will give at least a semi-privacy, a place for visiting and a pleasant outlook, and may be made to add to the picturesqueness of the street.

When the tenement can no longer be prevented, the city must step in and say that it can be erected on no truly minor street—as no high building should be;*

* A Baltimore committee has recommended that no tenement be permitted on a street less than forty feet in breadth.

that it shall not exceed in height the width of the widest street on which it stands; that it shall cover no more than 70 per cent of the lot area—every room opening upon the street, or upon a yard of depth sufficient to insure adequate ventilation, or upon a court of which the length and especially the minimum width, increasing with the building's height, shall be such as to give good ventilation. In most cities, probably, the proportion of lot which may be built upon can be put

WARDING OFF THE TENEMENT
One-family houses built in continuous rows around three sides of a court, or common yard.

even lower than 70 per cent. There will be other restrictions, of course, but of less direct concern to the present subject. Our best hope must still be that the shallow lot, the lessened cost of developing tracts for humble homes, owing to narrow and inexpensive streets, and the improved transportation facilities, which a well thought out system of main highways can afford, will make tenements unnecessary, save in occasional instances, and therefore unprofitable.

If there must be tenements, we can further ameliorate conditions by supplementing negative restrictions. Taking a hint from the cottage plan for fighting tenements, we can build them also around three sides of a court, then giving to the court the touch of beauty and the simple practical service of a sandpile for the children and of benches for the parents and the old folks.

Where the tenement does not originate through

THE TENEMENT AT ITS BEST

Ornamental planting in the large courtyard of a German tenement. In some courts a portion is enclosed to serve as a children's playground.

the need of obtaining a high return from the land, because of the capital represented by the land's excessive value or because of the height of what may be called the property's carrying charges, it will in most cases owe its existence to the wish, or need, of a great many people to crowd into a small space. The most familiar cause for this is the concentration of factories in sections having but limited residence territory in

their neighborhood. It follows, therefore, that the removal of factories to outlying regions may be one of the most effective agencies for counteracting the tenement.

From the town planning standpoint, removal is commended also by its withdrawal of objectional smoke and noise, and by the possibility of increasing factory efficiency. The latter feature must be developed, for though it is desirable to relieve congested living conditions, the manufacturer may not be expected to move his plant into the suburbs simply because he is sorry for the crowded poor. To make it worth his while, then, to locate in the suburbs, there is offered a double stimulus: the promotion of industry and the lessening of housing congestion.

In order that industrial efficiency may be promoted when factories are located in the outskirts of a town, there must be provided superior transportation facilities by rail and vehicle, and if possible by water; the land must be cut into blocks of conveniently large size for buildings, and the manufacturer must be assured that the efficiency of his labor, its steadiness and contentment, will be increased through a greater healthfulness of environment, an improved home influence and the enlarged opportunities for outdoor exercise. Happily, these are matters which town planning can largely control. It can, also, count on the precious aid which will be lent to it by longer hours of brighter daylight, and by the lower ground values and ground rents that permit a horizontal extension of plants. At Letchworth Garden City, England, for example, manufacturers are able to secure on ninety-nine year lease, at $75 annually, an amount of land that in some manufacturing districts of London would cost, it is said, $15,000 a year. The urban advantages of proximity

to market and to a large supply of labor are thus partially offset, while good planning can, as suggested, still further weaken them. In German cities the elaborate development of distinct Factory Districts is recognized as a very important part of city planning.

Finally, in securing a removal of factories to the outskirts, town planning has the opportunity—as already indicated—of putting them where they will do least injury to the community. That is to say, in the arbitrary creation of a factory district, there must be consideration not only of transportation opportunities—a feature which it is comparatively easy to control—and of general healthfulness of locality; but also of the proposed position in its relation to the existing city. The factories should not be put where the prevailing wind will carry their smoke into the city, where their location checks the natural growth of high-class residence districts, or where the heavy teaming incident to their operation is compelled to make use of expensively developed avenues. Finally, in large towns more than one industrial district should be planned, lest—even with suburban location—residential congestion result. The subject is touched upon without elaboration, as a related, though not an essential, part of this book's discussion.

It is significant, then, in considering the opportunity for improved housing facilities which the removal of factories affords, that the present town planning movement has been preceded, as well as accompanied, by not a little thoughtful platting of limited areas, done in a comprehensive way by the manufacturers themselves, when they have established their plants on the outskirts of cities. Of their own initiative, they have sought by such platting to gain for their employees, as well as for themselves, the advantages

which town planning ought to give. For example, Leclaire, Ill., the town built by the N. O. Nelson Manufacturing Co., is characterized by "winding cinder roads, bordered with spreading shade trees." In Echota, the town of the Niagara Development Co. at Niagara Falls, the modest homes are set twenty feet back from the street line, there are shade trees on either side of the streets, and the roadways are macadamized to a width of only twenty-five feet. The Cornell Co., at Coldspring, N. Y., has platted land into lots about 50 x 80 feet, has put trees between the houses as well as along the street, and hedges make the front boundaries of the gardens. At Gwinn, built for a mining town of the Cleveland-Cliffs Iron Co., in Michigan, main streets are eighty feet wide, containing two sixteen-foot roadways divided by a strip of planting. The three main streets are radials from the railroad station; minor streets are narrower, and each cottage has its garden. In the tract which the Plymouth Cordage Co. has developed, at Plymouth, Mass., the park and athletic grounds adjoin the factory—and so one might go on, mentioning Wilmerding, Hopedale, and scores of other places, and securing useful hints or interesting examples from each.

In Europe, the most famous developments of this kind are the Krupp villages, near Essen, Ger. Their suggestions are often of great value. In the Chocolat Menier village, near Paris, house walls are built flush with the street; but each pair of houses is so placed as to be opposite gardens. The gardens are long narrow strips, averaging 300 square meters, and are furnished with twelve fruit trees and are well cultivated. In England, Port Sunlight and Bournville, built respectively for the employees of the Lever soap and Cadbury chocolate works, may be said to have

ATTRACTIVE AND INEXPENSIVE STREETS OF THE KRUPP WORKINGMEN'S COLONIES, NEAR ESSEN, GERMANY

ATTRACTIVE AND INEXPENSIVE STREETS OF THE KRUPP WORKINGMEN'S COLONIES, NEAR ESSEN, GERMANY

blazed the way for the Garden cities and Garden suburbs.

But examples drawn from such developments must be examined closely before adoption, for very often—notably at Port Sunlight—altruism has gone further than strict business acumen would justify. Many times, too, the manufacturer, gaining through indirect benefits results that are denied to the simple landowner, who does not employ the labor thereby rendered more efficient, can afford to plan more generously and to provide more amenities than could he. Often, also, the employing company retains ownership of the houses, while the town planner should seek to encourage individual home ownership. His, in fact, is the difficult task of planning a tract development that will pay a fair return on the capital, while yet keeping the rental and sale value of the dwellings within the workman's reach.

Yet all such experiments have this significance: They show the existence of a demand, both on the part of capital and labor, for the planning of attractive residence districts for factory employees on the outskirts of cities. No doubt, also, many a useful hint may be drawn from them as to practical planning measures. One is reminded, at least, of Ruskin's comment: "Neither sound art, policy, nor religion can exist in England until—neglecting, if that must be, your own pleasure gardens and pleasure chambers—you resolve that the streets which are the habitation of the poor, and the fields which are the playgrounds of their children, shall be again restored to the rule of the spirits, whosoever they are in earth and heaven, that ordain, and reward with constant and conscious felicity, all that is decent and orderly, beautiful and pure."

There remains the necessity of saying a word with regard to the mixing of classes—a subject previously touched upon, but seeming in this chapter to need recognition anew. There is much, no doubt, to be said for such mixture as a sociological ideal; but that does not mean that houses of all kinds must be indiscriminately thrown together on the same street. Street boundaries do not limit the citizens' interests. Both poor and rich are probably happier in their own environment, among their own kind, where each can live his own life in his own way, without covetousness or odious comparison. The saving clause is that with good town planning these separate districts will not be vast unbroken areas. Their territory will be small and the great highways which cut it up will bring the life of the least important street into close contact with that pulsing through the highway. Residents on the latter will be in the same parish, the same political division, lodge or union with those on the minor street. So will be gained the healthy open-minded type of society that is desired.*

Perhaps the chapter cannot be better closed than with these words, both of further suggestion and summary, from Charles Booth: "I wish I could rouse in

* William H. Baldwin, writing as a member of the President's Homes Commission, said in a sub-committee report: "In German cities provision is made for homes of working people in narrow streets running through, and connected with, those portions in which the residences of people of larger means are found, instead of having each kind in a district by itself. Such a plan would have a peculiar advantage in this democratic country where the difference should be not in character but simply in the standard of living, and would be for the convenience both of employers and employed. Such a system we practically have now in the alley dwellings, in which the contact with the best residences of the city is so close; so that by the conversion of these alleys into minor streets, permitting decent living and encouraging self-respect in those residing upon them, we could establish a healthy social circulation in the body politic."

the minds of speculative builders a sense of the money value that lies in individuality, with its power of attracting the eye, rooting the affections, and arousing pride in house and home. Then would they seek to use, in place of sedulously destroying, every natural feature of beauty, and take thought of others. A slightly greater width of garden on the sunny side, whether front or back, may make all the difference; a single tree left standing can glorify a whole street. Fresh painting and papering within, is not the highest ideal; its charm passes; the other gathers force as the years go by."

It is with that spirit that the platting of tracts for humble homes must be undertaken. There must be the freedom from restraint that was craved in the planning of the high-class minor streets. With minimum traffic needs, we must be free by establishing a building line to gain front gardens on space that might have been thrown into dusty street,—at Homewood, Long Island, the City and Suburban Homes Co., of New York, requires a set back for its houses of fifteen feet;* we must be at liberty irregularly to widen the street so as to bring, if we can, a few fine old trees into public property; we must be able on occasion to set a back building line, if that be needed—as is done at Hetzendorf, a suburb of Vienna, at Rixdorf, Germany, etc.; and by making long blocks, where tendencies seem to make advisable such action, and then retaining rel-

* It may be interesting to note in this connection that the Harborne Tenants Limited, hampered, in developing a tract in Birmingham, Eng., by the by-law which required fifty-foot streets, applied to the City Council for relief on the plea that it would build only ten houses to the acre, and would set them fifteen feet back from the street. Relief was granted, and in reply to a criticism that ordinary builders would want the same privilege, members of the Council were quoted as saying that they might have it if making a like agreement.

atively shallow lots through the creation of allotment gardens or play space behind them we must be able, when the need arises, to absorb some of the land that has been thus reserved in order to build houses around three sides of a court which is open to the street. Not symmetry and exactness, but the best practical housing of the poor, the brightening of their lives, and the fostering of the home-spirit should be the aim.

If we succeed in this, substituting these gifts for dark courts and dreary streets, where there is not sufficient light and air for the health of body or spirit, we may expect that more grandiose town planning projects will grow easily out of the new born civic spirit.

CHAPTER XI

PUBLIC RESERVATIONS OTHER THAN THE STREETS

THE statement was made in the last chapter that a system of platting which gave large public holdings and small private lots was desirable, with certain limitations, for sections occupied by the less wealthy members of the community. It was added that the large public holdings need not be wholly in the form of streets. If we limit our definition of streets to traffic ways—the original and proper meaning of the term—we shall find that other public reservations include not only playgrounds, small and various open spaces, large parks, and the grounds for public buildings; but also parkways, and certain thoroughfares of exceptional width. These latter will be those to which extra width is given, not to meet the demands of ordinary street traffic, but that they may serve as strips of park-like value.

Perhaps a word of explanation is needed for having withheld consideration of such streets until the present chapter—striking features as they are of the city plan. It is found in the fact that a chief value of these thoroughfares is their hygienic and social contribution to the city's life. They have the advantage, indeed, over any equivalent area of park that their aesthetic attraction may be at the very doors of the largest possible number of people; that for the well-to-do they may bring the charm of the park into the line of daily travel, and that for the poor, who have neither money

nor time to visit a distant park, they make several of its benefits immediately available. Thus in significance such thoroughfares are more nearly akin to the park than to the street.

The mere enumeration of the various kinds of public reservations which may be found in cities, aside from streets in a restricted sense, is enough to reveal how large and complex a problem is injected into town platting by their means. That the width and arrangement of streets must be frequently influenced by their presence is evident, and that these reservations cannot be ideally located after street lines have been fixed—not, at least, without much wasteful undoing—is obvious on reflection. It is, then, because the street, the playground, the park of whatever kind, and preferably also the public building site, are factors to be coincidently considered in all town planning which is done in a large way, that some measure of consideration must be given to them in a volume ostensibly devoted to streets alone.

Nelson P. Lewis goes so far as to say,* "Instead of adapting the park system to the street system, the former should to a considerable extent control the latter. In other words, one of the first subjects which should receive serious consideration in the preliminary study of a city plan is that of available park sites." Probably, however, without giving precedence to park system or to street system, it were better to say that the two are interdependent. They are best planned coincidently, as products of a study of the town, or town extension, site.

In making this study, one is likely to find, for example, "waste" areas that are "the despair of the

* Paper read at the second National Conference on City Planning, Rochester, N. Y., May, 1910.

WHERE A STREET WOULD BE EXPENSIVE BUT A PARK WOULD BE CHEAP

A DEVELOPMENT THAT WAS ECONOMICAL AS WELL AS BEAUTIFUL

engineer and the sorrow of the real estate dealer." The early reservation of such areas for park purposes is almost sure to have the negative value of saving an enormous amount of money in the later development of the city. Even if they have been considerably encroached upon, economy may still demand the giving up of ill-advised and costly attempts to make them into conventional streets and building sites. Imagine these areas as precipitous hillsides, deep ravines, the banks of a little winding river or the shore of a shallow lake, and experience shows that the choice is usually between a park or a slum, between a section of distinctive beauty and value or a region of degradation.

Fortunately, where topography is irregular, those portions which are least adapted for business or residence are best adapted for parks. They are the features which are naturally picturesque; and because they are not well fitted for building, they can be cheaply had. Thus, too, there is the probability that if they be not taken for parks they will be dotted with shacks and rubbish heaps, bearing the marks of the scorn that is felt for them. It has been well said:* "The little rivers will become pestilence bearers and open sewers. The fragments of ponds remaining unfilled will be nuisances to all their surrounding neighborhoods. The steep and rocky hillsides will present everlasting problems of street construction. The drainage of the lowlands will be ever troublesome. A logical, instead of whimsical or accidental, development would make a city most attractive in those parts where otherwise it would be most shockingly ugly, ragged and ill-arranged."

It is true, of course, that some cities are built or

* Henry A. Barker in the special City Planning number of *Charities and The Commons*, Feb. 1, 1908.

extended over plains, where one acre is pretty much like any other and all are well adapted for streets and building lots. But even there it is economically desirable that the planning of the park features proceed coincidently with the planning of the streets. In such a region parks and playgrounds and elaborately parked streets, to say nothing of public building sites, are at least as necessary to the community as if the site were not so uniform. As soon as it is platted and transportation lines are contemplated, values jump. If the reservations have not been secured at farm value, the community—even though the town plan prescribe the maximum number of houses per acre—has to pay a heavy penalty for delay. And though it be willing to pay high prices, it may not then be able to locate its parks, playgrounds, allotments and other reservations in an ideal way. A park may have to be placed where it has no adequate approach, so that streets that lead to it have to be widened and whole neighborhoods changed; a site which has been cut into lots and partially built upon may have to be condemned for a playground; or a schoolhouse put where no sufficient schoolyard can be added.

Further, it is because streets and other reservations are not independent of one another, but have reciprocal relations, that they must be planned together. The park system is a portion of the framework of the city as truly as is the street system; streets bound, determining shape and size, small open spaces; and, conversely, the location of parks may be a determining factor in considering the width and direction of streets. The size of houselots may depend on the proximity of public reservations; parks, if bordered by curving streets, would be often more attractive than if squared off by straight ones; hillside streets may

widen, happily, into outlook points—treated formally or informally. Boulevards and parkways have a traffic value; while the small gores and other left-over spaces of an irregular street system have park significance. In no town planning scheme can the streets and other reservations be separately considered with the best effect.

A question, which will very naturally at once suggest itself, is this: What proportion of the total area

A Hillside Street Widened Into an Outlook Point
A view at Aix-la-Chappelle.

should be put into parks, playgrounds, and public reservations other than the streets? Statisticians have tried to answer, but with as little success as if one asked how many trees should be planted on a fifty-acre tract subdivided into blocks. So much depends on the kind of trees available, the use that the land is to be put to, and other considerations. But F. L. Olmsted and Arnold W. Brunner, collaborating in a city study,* quoted a widely accepted ideal when

*"City Plan for Rochester."

they said that every family should be "within easy walking distance of the park which is to supply its needs." In quoting this, and explaining that easy walking distance meant a quarter-mile limit, they calculated that such provision "would involve setting apart from five to ten per cent of the total city area." They added the comment: "From twenty-five to forty or fifty per cent is set apart for streets, without hesitation." And so good an authority on real estate as William E. Harmon, of New York, has written, in referring to a bill requiring that in the State of Washington small parks and playgrounds shall be included in all future land sub-divisions—a very significant bill, by the way—that, while it is "highly important, from the point of view of true economics, that no undue burden be placed upon practical work in the field of realty development, or home building, on a large scale, for in the end this burden must be borne by the buyer, yet, if the areas of land segregated are properly distributed, so that the adjacent lots have either a front or rear exposure upon the open space, the added value to such lots will compensate for the land given up to public use.* Again he says:† "Could we have seen ahead, as we can now look back, we would immediately have begun the segregation of lands for park purposes in all our subdivisions, and would not only have served the community better, but would have received a return in dollars and cents sufficient to amply repay for every foot of ground so utilized."

The effect of park proximity upon real estate values has been studied in various communities by

* See *The Survey*, Feb. 26, 1910, for demonstration of this.

† In paper read at the convention of the American Civic Association, Nov., 1909.

various authorities.* It hardly is pertinent to this discussion beyond the point of showing that in this respect the town planner can be generous without extravagance, especially if the planning of the streets and these other reservations is done simultaneously. Nor need there be repeated here the familiar arguments in favor of playgrounds, athletic fields and parks of all kinds. We may assume that they are good things for a community to have†—so good that, in spite of their cost, they increase, rather than otherwise, the saleability of house-lots, provided they are intelligently located and developed. The one matter which concerns the present inquiry is their connection with the streets and consequently with the houselots.

We may take first the small open space. This is of many varieties and serves divers ends. Historically it was the market square, a space chiseled out of the intricate network of narrow streets and made big enough to hold many booths. When the market was not in session, it still proved its community usefulness. New cities were built, and old cities rebuilt, under modern conditions, but the open space was retained

* A convenient reference is to an investigation made by an officially appointed committee of citizens of Madison, Wis. The Report, dated March 11, 1909, has been published in pamphlet form by directors of the Madison Park and Pleasure Drive Association.

† "I have spoken of the utilization of public reservations, as if they were to be expected to yield only health and enjoyment and improved powers of perception; but I should deal with the subject very imperfectly if I did not point out that the right utilization of public reservations is a strong agency for promoting public morality and a high standard of family life. . . . The appropriate pleasures of forest reservations or country parks are all cheering, refining, and cleansing; they are soothing and uplifting; they separate city men and women from the squalor, tumult, and transitoriness of the human ant-hill, and bring them face to face with things calm, lovely, grand, and enduring."
—*Charles W. Eliot, President Emeritus, Harvard University.*

irrespective of market use. It was now made very open and very spacious; it gained an air of magnificence that old squares did not have, it conveniently sorted traffic—when the volume was not too heavy, and it afforded an opportunity to study the architecture of abutting buildings. But it was discovered, after a while, that somehow the charm and picturesqueness of the old square had not clung to the new. Then we found that the secret of the former's peculiar attraction was the sense it gave of enclosure. The mediaeval square was nearly all wall, the streets stealing into it around a corner. It lay at the side of the main street, rather than across it;* and so at times had a quiet, semi-private air. The more modern square was nearly all street, and was designed to be busy. In the old way of planning, one stumbled upon the open space as a surprise. In the later way, its presence was known afar off; for a great distance it was the dominating feature of the converging streets. Thus is the open space one of the most conspicuous of the rocks upon which have split, in irreconcilable difference, the two schools of town planning—the formal, as represented especially by the French; and the romantic, as represented especially by the Germans.

But there is room, and need, for both kinds of open spaces. In good town planning of to-day we may expect to find them both. Whether they are paved plazas in the business district or gardens in the residence sections, makes little difference here, since only their location and outline plan concerns this discussion. As to the latter, Mr. Mawson enunciates the following interesting general rule in his "Civic Art": "Under ordinary circumstances the length of a rectangular

* Note, for example, the open spaces of old Brussels, as shown in the frontispiece.

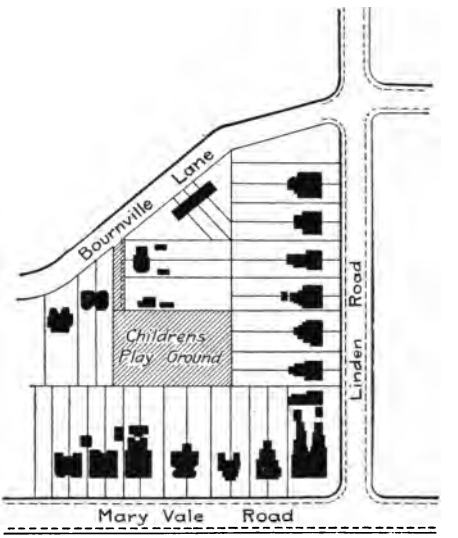
open space should be double its width, and the longer diameter of an oval one twice the length of the shorter." But this, as he hastens to say, is a broad generalization, to be treated more as a groundwork, for adaptation, than as a rule to be pedantically followed.

Aside from the "squares"—to give them the familiar generic name, though it has little geometrical accuracy—there are the small left-over spaces of the irregular street system, of much potentiality for the beauty or the ugliness they may add to the public way. Usually of no value for building purposes, their reservation happily involves no sacrifice commensurate with the possibilities they bring. Then there is the small space created for the deliberate purpose of enhancing the value of abutting lots. It may be the fenced garden which London makes familiar; it may be an outlook point to widen vistas or to increase the number of the lots from which a view may be had.

There are, also, to be sure, abundant examples of a city block, taken out of the market and stricken from the tax lists in order that it may form a green oasis in the midst of city streets; and there is many an example of good building land having precious street frontage which has been transformed into a playground. But it may be doubted whether such developments are more than a confession of inadequate early planning—costly efforts to provide what a wiser street platting could have given more efficiently, more naturally and more cheaply. Sometimes, as has been indicated, the square will pay for itself in the value it adds to abutting property; but even so there is a sense of waste in that its net addition to value is negligible in amount. As to the playground, it is almost always

better without more street frontage than will suffice for an adequate entrance.

The location of playgrounds inside the block was suggested in the preceding chapter. By a reduction in the length of gardens that is not sufficient to reduce their practical usefulness, it is possible to save out enough land to make a very good little neighborhood



LOCATING THE PLAYGROUND INSIDE THE BLOCK
A section of the street platting at Bournville, Eng. Note that the special entrance to the playground is from Bournville Lane.

park or playground. That is to say, if there be added into one, central, common mass the unimportant subtractions made from all the backyards, there will be gained a middle area of sufficient extent to be, in a region where it is necessary for the community to furnish the recreative facilities, of real value to the people who live on the lots which enclose it.

Some other aspects of such action further commend

it. In such a section, an area of this kind is almost ideally located for a playground for small children. Not only are the children kept off the street, but in their play they are beyond the gaze of passing strangers and idlers. They are perfectly safe, and are within constant sight and call of the mothers who, in the humble homes, are more likely during the day to be at the back of the house than in the front rooms. The space is not large enough to be used as an athletic field by men and older boys, and hence is not likely to become a nuisance. And when the little children are through with it, how good a place it may offer through the long summer evenings for tired workers to sit out-of-doors in neighborly communion!*

The placing of the playground here makes possible, also, the platting of longer blocks without the lengthening of houselots—as we saw was the case in thus locating allotment gardens. The advantage of the longer block is that in a large tract it means the building of fewer streets—i.e., a saving in the costs of development and of public maintenance, where the

* In this connection, it may be well to quote the following from the Report of the New Haven Civic Improvement Commission (Cass Gilbert and F. L. Olmsted, 1910): "Consider for a moment the waste of land in deep lots for city dwellings, taking a comparatively open standard of urban development such as has prevailed in New Haven in the past. A given tract of land half a mile square, provided with streets occupying a third of the total area, will subdivide in 619 lots of the [New Haven] standard size of 50 x 150 feet. In such a district, when the lots are all occupied, there will be no playgrounds for the children except the streets and the backyards; there will be no parks or squares or other open ground whatever. If, on the same tract with the same area in streets, the same number of houses should be erected on lots of 50 x 125 feet in size, there would be left over 17.7 acres for purposes of public recreation. This would be more than enough, if well arranged, to assure for all time that every boy and young man, who will ever live in that district, shall have opportunity and inducement near his own home to play baseball and all the other vigorous outdoor games that

traffic makes no demand for more generous provision and where any such saving means much to the householders. At the same time, the arrangement retains the possibility of the tract's subdivision into smaller blocks at a later time, should conditions justify such action. Finally, back land costs practically nothing, while land with street frontage would have a value that very probably would make sufficient playgrounds in such regions prohibitively expensive.

Of course there will not be need of a playground inside of every block built up with humble homes. Some may have allotment gardens, some may have small parks, or places for the entertainment of adults —as bowling greens, quoit grounds, etc. It will be necessary consequently to provide a footpath entrance, so that persons who do not live in the block may be able to reach the pleasure ground. But this need take only five feet of frontage, and perhaps one of the house-lots can be sold subject to the granting of such a concession. To the example of this kind of platting offered by Harborne, England, to which reference has been made, there may be added that of Forest Hills Gardens in the United States.

Athletic grounds for young men are a real need in all industrial communities. They should be accessible from the shop and from the home, and ought to be

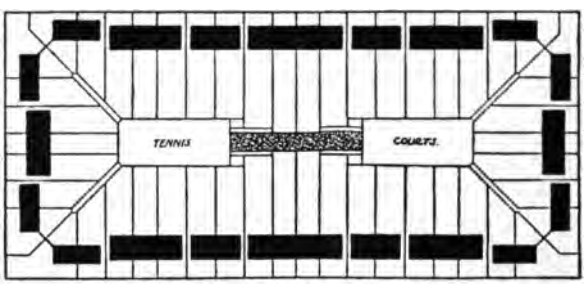
make for a sound body, a clean mind and a healthy nervous system; to provide space that could be set apart for a swimming pool to be put in operation whenever the neighborhood or the city might feel disposed to pay for constructing it and supplying the water; to provide that the little children could have a shallow pool of their own, with a clean sandy beach and bottom where they could wade and play with toy boats and make sand pies and forts as well as if they were to be taken to the ocean beach itself; and to assure that for all time the dwellers in that district would have only to walk two or three blocks or so to find a pleasant open spot with shady paths and benches for summer use. No sane man can doubt the advantage of such a method of subdivision."

treated as an essential feature in the planning of industrial sections on the outskirts of cities. When practicable, it is better to give them factory surroundings than home surroundings.

As to the public parks and gardens, there must be recognition of the truth that no public provision takes the place of the home-garden. But the large parks can give some things which not half a dozen home-gardens of the city are able to give, such as long, soothing views; the tranquility of meadows; the peace of woods,—nerve antidotes of tremendous value in the stress and strain of urban life. Or they may preserve bits of scenery, which may be rightfully considered the proper heritage of all who choose a given city as a residence. Even at best, there are many homes whose occupants would have no gardens of any kind if there were no parks. Then, again, there may be in them a wealth of bloom, or an exotic collection of such rarity, value and interest as few private gardens could afford. If we expect operatives who have tedious work for long hours to be satisfied to live out of the congested portion of the city, we must grant them compensation for the loss of the attractions of the crowded street by providing the recreation, amusement and education that parks can give. In other words, the dedication of lands for park purposes in any residence section of the city does not fail to make nearby lands more marketable.*

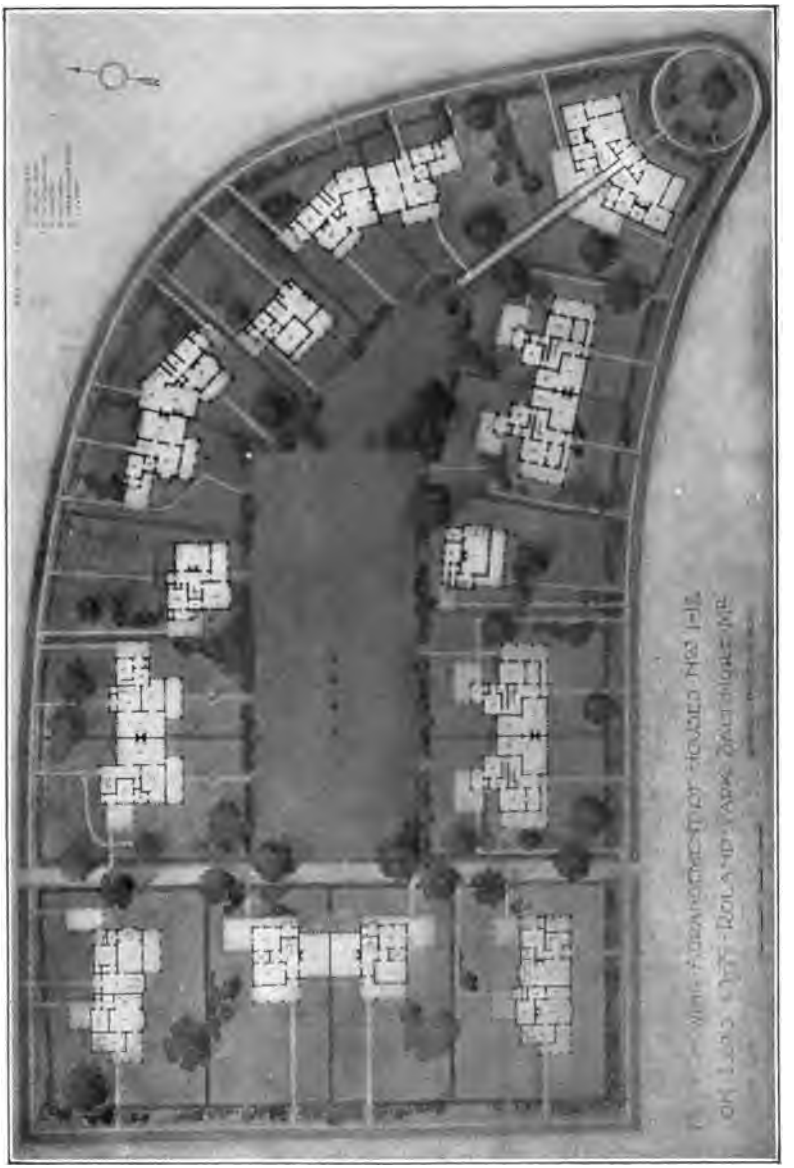
* It may be observed that if a community is sufficiently supplied with parks for other purposes, a pleasant outlook can sometimes be reserved for it without the requirement of actual public ownership. For example, a certain shore of the Aussen Alster at Hamburg was originally wooded. The city required the owners to cut down the trees, so that the view might be enjoyed from the Harvestehuder Weg. The cleared land was thereupon laid out in gardens, and a law prohibited the erection of houses that could spoil the view.

To the advantages of the broadly parked street, for the poor as well as for the rich, there was reference at the beginning of the chapter. A convenient illustration is to be found at Frankfort-on-Main. In the German manner, the city proposed to erect some new tenements. It was decided to place them near the Guenthersburg Allée, which with its center parking is 240 feet wide, in order that it might be easy for the occupants of the houses to reach "places where they could enjoy abundant light and fresh air, and either exercise or rest."



AN ARRANGEMENT FOR COMMUNITY TENNIS COURTS PROPOSED BY RAYMOND UNWIN

There are various ways of developing these very wide streets. The well known Unter den Linden, in Berlin, has a central promenade forty-two feet wide, tree bordered on either side. The Stübel Allée, Dresden, has a garden through the center, and on either side of that a promenade with a double row of trees. Outside each promenade is the car track, the traffic road and then the sidewalk. This Allée's total width is 138½ feet. Other streets, as Rhein Strasse and Wilhelm Strasse in Wiesbaden, for example, have a bridle path as well as a broad promenade for pedestrians. On the Champs Elysées, Paris, where the tide



AN APPLICATION OF THE IDEA OF AN INSIDE PARK TO VERY HIGH-CLASS RESIDENCE PROPERTY

of travel is so mighty that pedestrians would find it difficult to reach the center of the thoroughfare, the promenades—here very broad graveled ways which are planted with trees—are at the sides.

It is clear that such streets as these should lead to something. They should have an objective worthy of their splendor, termini in keeping with their character, and such as will furnish or attract the kind of travel that can appreciate them. In the remodeling of Continental cities, however, the demolition of encircling walls has offered so good an opportunity for building girdle streets, to which great width can be given at little cost, that the benefits of such streets, plus the chance to get them cheaply, have been thought to justify their creation without adequate termini. But as a town planning theory, for use in the building of new towns or the platting of town extensions, a construction of radial, rather than of circumferential, parks and parkways is, generally speaking, to be preferred. H. V. Lanchester, of London, has put the argument for the former briefly and well in saying: "Where special circumstances have not determined the plan, it is clear that a series of parks placed radially is the more reasonable method. For one thing, they do not define the city area and exercise a restrictive influence on the space within them. For another, they lead from the more densely populated areas out into the open country, thus encouraging a general exodus towards it. . . . This is a much more economical method than the ringstrasse, as the land would extend into the open unimproved country where land could be obtained at agricultural values."

If it be granted that thoroughfares of this kind ought to have worthy objective, what, indeed, could be more appropriate than a park? When streets

like these join park to park, or park to business district, they go far to coalesce park units into a park system, and so to knit the city's pleasure grounds and beauty spots, as they should be knitted, into the street plan—a lovely figure woven into the streets as warp and woof to form the perfect pattern of the town.

There is another group of parked streets, to which reference must be made. Less ample in scale and less elaborately developed than the parkways, they yet serve a more aesthetic end than do the main traffic thoroughfares which are, or are likely to become, routes for rapid transit. These are streets which carry a double roadway divided by comparatively narrow center parking, besides carrying grass margins between the sidewalks and the curb. In Germany such streets, though costly, are sometimes put through the poorer quarters as well as through the richer. As a result, tall tenements line them where the people are not well-to-do. The more normal and appropriate building along their margins is that of the costly individual homes with which in America they are associated.

The development given to the center parking is varied. The looped vines and gay flowerbeds of Germany may be set over against the cement bordered grass plats which nearer home are sometimes suggestive of monster graves through the center of the street. But if the street rises, and this *tapis vert* is not too often and conspicuously broken by crossings, this arrangement has much to commend it. More often, low growing shrubs and bushes—as roses—are planted in the turf. If these are arranged in appropriately placed groups, rather than scattered promiscuously, they may do much to make a lovely street. Finally, trees are used in various ways—low conifers, grouped

to give the effect of shrub planting that will be green the year round; flowering trees, used with shrubs or in an orderly row; old trees, kept as single specimens for their beauty, and occasionally conventional shade trees.

CENTER PARKING PLANTED WITH FLOWERING TREES
Oxford Street in Rochester, N. Y., with magnolias in bloom.

On such streets each roadway can be quite narrow—say, 18 feet; for on each the travel is in a single direction, and there is only the need that the moving vehicle shall be able to pass one waiting at the curb. The center parking should not be less wide than is a roadway. Allowing for walks and side parking, eighty

feet, then, between lot frontages, may be considered close to the minimum for these narrower parked streets that are not main traffic highways.

A third group of parklike streets is represented by those which, without commercial purpose, skirt a waterfront. Now and then passenger steamers may touch at the shore; but the essential purpose of the street is to furnish an attractive promenade rather than to serve the needs of navigation. The Thames Embankment, London, and the Rhein Anlagen of Coblentz, Bonn, etc., are types of this kind of street. No general rule can be laid down for their width, though it is desirable that there be space for seats. Their significance as regards this volume is, (1) the example which they offer of that use of natural opportunities in the street planning which, at the minimum of cost, gives the maximum of service; (2) their exemplification of the park-usefulness of certain streets.

As aesthetic considerations are of special value on streets of parklike character, their purpose being rather to add to the beauty and stateliness of the town than to accommodate traffic—which, indeed, is sometimes restricted upon them—it may be well to emphasize again the need of proportioning length to breadth, and of avoiding loss of perspective and monotony of aspect by arranging breaks or accents to rest the eye. It was suggested in the chapter on Main Traffic Streets that these might well come at intervals of approximately three-quarters of a mile. Sometimes half a mile will be better, the conspicuousness of the break, the width of the street and its gradient being of course factors of much influence.*

* Thomas H. Mawson has collected in his "Civic Art" some interesting illustrations of the provision of such breaks. He says: "In the design for Lord Street, Southport, the Campanile, and in Dunfermline,

A slight change of direction is often the most available means of securing the break in parkways and boulevards, where the shortening of distance and directness of connection are not primary needs and where it may not be easy to secure an architectural or sculptural accent. For such change the curve is usually to be preferred, and it ought to be a curve of long radius, the point of transition from straight line to curved having definite mark. Another device is the broadening into an open space, as suggested in Chapter V. Where curves are used a serpentine line is to be avoided, if stateliness of effect is desired. But sometimes the purpose is picturesqueness rather than stateliness, and in such cases a parkway can be serpentine. The tree planting then should be informal, for obviously a regular spacing of the trees on a serpentine road would defeat its object. Nor should serpentine roads be broad ones.

We come now to sites for public buildings. The reservation of these at the time when streets are platted and parks located, is a more forehanded measure than American towns seem generally ready for—though it is an accepted part of some European city planning. No doubt the average "practical"

the four towers flanking either side of the road through Pittencrieff Park, were intended to supply the necessary break, whilst on the grand boulevard, which was proposed for the connection of Dunfermline with the new naval base at Rosyth Bay, the end was to be marked by pylon-like towers. Owing to its somewhat steep gradient, which would foreshorten the perspective, a greater proportion of length to width than is usual could here be allowed. In laying out new cities, as well as in remodelling old ones, cases must often occur where it is advisable to construct boulevards for a distance considerably in excess of due proportions, and where none of the aids to proportion proposed at Southport or Dunfermline are possible; innumerable devices have been resorted to to meet this difficulty. The first and most usual is the ronda or circus, of which the Place de l'Etoile, Place de la Nation, and Place d'Italie in Paris are notable examples."

person is inclined to dismiss such a project as too great a venture into the speculative field to warrant municipal action. But really it is pretty safe speculation. Under a town planning scheme, a tract of agricultural land is laid out into streets, with certain areas reserved for parks and playgrounds of one kind or another. The population that is to occupy the tract is foreseen—its limits fairly well set by the character of the platting, and perhaps indeed set absolutely by a law limiting the number of houses per acre. That in a growing city the population will by degrees come up to, or come very close to, the established limit, there is no reason to doubt. It may be assumed, then, as a known quantity in determining what provision to make.

The school authorities know just how many children must be provided for in any given population; exactly the size of the building that must be erected to accommodate those children properly, and precisely the schoolyard area which a building of that sort ought to have. In other words, given the platting of the tract, the school area that should be provided can be definitely foreseen; and this being so, why is it not the part of wisdom to reserve that area in the places most desirable for such use before values have advanced? As with regard to the schools, so with reference to fire-houses, police stations, branch libraries, etc.

If it be objected that a long time may elapse before the influx of population will make public structures necessary, the reply is that no buildings need be erected until they are required. The only investment is in the land, and by securing that at the time when streets are platted the investment is made on a safe basis and does not represent a large sum. Further, experience suggests that the ultimate saving in not

having to buy lots at high values after the population has come, and then having to enlarge the lots at still higher prices when the population has grown, will much more than balance the interest on the investment—even assuming that the land stood idle in the meantime.

The action precisely corresponds to the reservation of lands for parks; it is even more conservative than building sewers and laying water mains which in size anticipate future demands. It has the further advantage that it makes possible not only the most efficient setting of the public buildings, but also the most economical, and the most effective architecturally. The school, for instance, may adjoin the playground,* and so without detriment have its own yard reduced in size. The library may face a park, that will insure a setting for its building and quiet for its readers. The fire-house may be placed at a forking of streets, to the saving of precious minutes. It may be possible, using a small open space as nucleus, or a grand avenue as their setting, to group the public buildings and so to establish a local civic center.

There has been a mistaken tendency, which now is passing rapidly, to associate a city's parks and parkways with the more well-to-do portion of the community. If in this discussion it has seemed that the needs of the people of smaller means, and the service which the town planner may render to them and to the sections in which they live, has had especial emphasis, an excuse may be found in the numerical predominance of the wage-earners in modern cities. It has been estimated† that, taking one city and town with

* See illustration on page 105.

† Prof. Eberstadt, in an address delivered at Wiesbaden to visiting representatives of the National Housing Reform Council of England.

another, ninety-two per cent of city residents are represented by workmen and their families and only eight per cent by the professional and wealthier class. Just where the line is drawn—the point upon which the accuracy and significance of the figures wholly depend—is not stated; but at least they indicate that the town of to-day, unlike the ancient city, is a community in which a great majority of the people are economically below the standard, once represented in overwhelming numbers, of old time burghers, merchants and craftsmen. Town planning finds its only motive and justification in the betterment of social conditions—conditions of living and working; and the final test of its merit must be the degree to which it does this for the masses of city dwellers.

CONCLUSION

In drawing this volume to its conclusion, a hundred lines of thought invite consideration. It is as if, in turning one's back on a fascinating city, of which there has been time for only a glimpse, one stood at the station upon an elevated plaza from which led many streets of alluring vista. Some of the roads are broad and straight, some are narrow and devious; but all seem enticingly to beckon, making one loth to leave until their mysteries have been explored. One cannot feel that full justice has been done the city until one knows those streets. Yet time is up, the bell rings and the whistle blows.

Perhaps the dominating thought must be the bigness of the subject, its interest, its importance, its grip on the urgent things of life. Consideration of the width and arrangement of streets, far from being a by-path of investigation, proves a broad highway. All the currents of life, all the grades of society, are intimately affected by the problems it includes. The joy and pain of urban existence, the comfort or hardship of it, its efficiency or failure are influenced by the wisdom or the thoughtlessness with which streets are platted.

The street, thus studied, gains a new dignity and value. No more can it be despised. We shall not dare to speak in reproach of those whose existence is closely bound to it—as "the children of the street," the "women of the street"—for we find that the fortunes

of us all are affected by it. It is more than a passage-way, though even as a passage-way it is the channel of the common life. It makes the boundary of our homes, it gives us our outlook upon the world. In fact, the streets make the cities what they are, and the cities make the world. When we study how best to plan the streets—not the main highways only, nor only the great show avenues, but the minor streets as well—we have no mean subject. "I fancy," said a student of city progress in a recent address,* "that the civic renaissance which must surely come, which indeed has already appeared in its sporadic beginnings, will never get very far until we have awakened to a realization of the dignity of the street—the common street, where the city's children play, through which the milk wagon drives, where the young men are educated, along which the currents of the city's life flow unceasingly."

The street, then, is to be thought of, not as a line in a drawing, not as a mark on a map; but as a living thing. This quality of it, which adds so vastly to the interest of the problem, adds also to its difficulty. For it requires that our plans must not be too rigid. Conditions change, people migrate; the lot unit which well suits a neighborhood to-day may be too large, or too small, for the uses which are to characterize that neighborhood two generations hence. This flexibility of plan must be secured mainly through the minor streets.

Great highways cannot readily be changed. Their location must be determined by fundamental considerations that can only change slowly, if they change at all. These highways cut the city area into large main blocks; and it is in the subdivision of these by the minor streets that there must lie the flexibility of

* Dr. Delos F. Wilcox, before the City Club of Philadelphia, 1910.

the plan. As was stated in an early chapter, the city planner is not infallible. Though he be an admirable diagnostician, new conditions will create new needs. His main lines can be strong, confident and firm; but between them there must be the possibility of transformation. There could hardly be graver fault than to adopt a city plan with a sense of finality, fancying that there never will be need of fitting and moulding it to meet changing conditions.

Yet town planning does unmistakably tend toward stability. If, for instance, an industrial section grows up, in response to the exceptionally satisfactory provision of transportation and other facilities, that section will not readily move. This will be, in part, because when new facilities are to be added, the temptation and pressure to add them to the same district, where existing plants can at once make use of them, will be almost irresistible. The permanency of the factory district will fix the location of the employees' housing section, and the location of houses does much to determine the location of stores. Cities grow—but not, in the often quoted phrase, as Topsy grew. The city is the most artificial of creations. Every street is deliberately staked out; its direction, its width, and its subdivisions determined consciously in advance. City growth is directed growth; and the more firmly it is in our power to direct that growth, by comprehensive scheme and central control, the less vacillation there will be in its development.

And stability, no doubt, is a good thing. There is always economic waste in the abandonment of the old for the new. Moreover, a constantly shifting population is not as easily governed, or as well fitted to govern itself, as one which has such permanency of habitation that civic affection and civic pride has a

chance to take root. A platting of streets, so wise and well thought out that there will be little temptation to change it as the years go by, will do more than perhaps most of us realize to bring about good municipal government and contented urban populations.

Considered, then, as an art, the purpose of town planning is, briefly, to "do for the city what the architecture does for the home." The architect accepts as fundamental the home's human service, and the use of different parts of it for different purposes. He does not put the nursery on the north side where the children will have no sunlight; he does not put the kitchen at the front and the drawing-room next beyond. He does not build in such a way that no change will ever be possible. Continuous healthfulness, convenience, comfort, and beauty are all desired and are all sought by a single rule—that of order and commonsense and with the possibility of moderate changes when, to gain the desired end, such changes become necessary.

Taking another point of view, a business man, proposing to create a new, or to improve the efficiency of an old, commercial or industrial plant—which is the business aspect of city life—sets about it with a plan. He adjusts parts to functions. He does not put his warehouses at the end of the tract away from railroad sidings, as we sometimes do in the hit-or-miss building of cities; he does not scatter interdependent units, as we almost always do when building cities. By order, system, and forethought he seeks to save energy and time. It is so in wise city planning.

Again, the architect in building the home considers (1) the owner, (2) the tenant, and (3) the community. The town planner may well put his project to the like threefold test. He must ask himself, how, first, does

it affect landowners, those owners—municipal, corporate, or individual—of large tracts on the outskirts of towns, whose subdivisions determine the manner of the city's extension and the future welfare of its people? If it be not just to them, and even advantageous to them, progress cannot be anticipated save by a revolutionary social upheaval. Second, how does it affect the individual home owners—"ultimate consumers" in the field of city planning—to whom the lots in the large tracts are sold? It must be just to them and to their advantage, or the subject does not deserve consideration. Third, how does it affect the community?

It is impracticable to go over all the arguments. In the preceding pages the question has been looked at from many points of view. It has seemed that a well thought out, reasonable system of street platting, undertaken with foresight, must necessarily be to the advantage of all tract owners. No one who owned a tract would think of cutting it up until he had in mind a plan for the whole. If that is the course of commonsense with reference to a comparatively limited estate, it must be the proper procedure with reference to the town—a vastly larger and more important estate. The inter-relation between lot and tract, and tract and town, is similar.

A point, however, to be noted here, is that a large owner of real estate might be fully persuaded of the advantage of town planning methods, but unless the community had town planning powers—the authority, the central control, and the ability to grant the privileges that can be granted where there are such powers—he might be entirely helpless, as regards the service which he might render to the community or to himself by putting his good ideas with reference to street

platting into effect. If, through ownership of a complete tract, he were able to do anything, it would be only in a limited way, and with the danger that his neighbor by an inharmonious development might ruin all he had done.

To the large owner of real estate, therefore, town planning does mean hope. And it is advantageous to him in another way. Instead of leaving him dependent upon his own scant knowledge of the subject, or at the mercy of any conveniently obtainable surveyor or landscape engineer, it makes available for solving his special problems the best experience and thought that the community can engage. This will study, for instance, the most advantageous size and shape possible to be given to the lots into which his tract will be cut; if he has waste lands that he can hardly hope to sell for building purposes, at any rate not without very costly development, it may order the community to buy those lands for park purposes. And it would have the authority to enforce its recommendations. It would insure him against sudden depreciation of values through spite, ignorance or indifference by owners of adjacent lands, or by the community itself. Even in setting limits to the intensiveness with which an owner could use his land, it does not necessarily, as we have seen, lessen his net profits. The purpose of city planning, as Lawson Purdy, President of the New York City Department of Taxes and Assessments, has well said, is so to plat the public property that the land which is privately owned may be put to the best usefulness.

With regard to the individual home owner, he is the one for whom, in the last analysis, streets are platted. Unless they make for his convenience and his comfort, unless they give him a good home and

facilitate the transaction of his business, they have failed in their purpose. It is important to keep this in mind. Though we should give to him, in our social enthusiasm, churches, parliaments, schools, libraries, baths and workhouses—as altruism has generously done—and though we should group some of these in a very effective center, if we forget the facilitation of a wholesome family life and personal efficiency, we shall fail to serve him in the best way. As for town planning's special consideration of childhood, the hope of every country is in its children.

Good street platting will not do everything for the individual or the family, but it can help much. The book has tried to emphasize this relation. Even when considering the subject's financial rather than social aspect, it has dwelt more, it will be observed, on the economy of town planning for the individual, than on its saving for the community.

Yet the third question, the effect of the plan upon the community at large, is very pertinent. There are two points of view. The readiest judgment is that, as the community is simply the sum of the individuals who compose it, whatever makes for their betterment makes for the good of the whole. In the largest sense, this is true. Yet there are some things in which the community must take co-operative action, and for which individual welfare and the individual viewpoint are not enough. For instance, it is by no means as certain as some one assumed who said, "when Mr. Smith," as typifying the individual, "possesses in peace his own solid little home, he will attend to the town hall." He may be so snug in his little home, it may so cramp his naturally narrow vision, that he will decline to be interested in a town hall. Lawrence Veiller, secretary of the National Housing Association

in America,* has said, that "the small property owner, with limited resources, . . . is the greatest obstacle to progress. Burdened as he is, limited in his intelligence, his own standard of living low, his knowledge of sanitary science practically *nil,* it is not strange that he should not place the welfare of the community above that of self-interest and should not divorce, in his consideration of public questions, their effect on his own pocket from their value to his neighbors and to posterity." The small property owner's conservatism, fortunate when in moderation, becomes, when carried to the length of narrowness and selfishness, the bulwark of that false public economy which is responsible for so many of the shortcomings of towns and cities.

Now, a first principle of town planning is consideration for the rights of others. It finds its base in community spirit; it does give the large view; it simplifies co-operation for the common good. This is its great and precious community contribution.

Secondarily, it means also, as has been hinted, economy for the community. J. S. Nettlefold, writing in 1908, declared that a careful compilation seemed to establish it as a fact that in the preceding ten years "not less than £30,000,000, which town planning would have saved, had been expended" for street widening, slum clearances, the provision of open spaces, and such improvements by English towns. He stated that in his own (the Birmingham) committee, 2,105 unsanitary houses had been dealt with during the last five years, a period during which, he thought, Birmingham had done rather less proportionately than other cities.

Finally, it may be remarked that a well organized

* Article in Annals of the American Academy of Political and Social Science.

society tends to express itself in an organized, dignified and individualistic way. The city with a well developed civic consciousness will ultimately have a formal and dignified civic center, representative of its official entity. Without town planning, it may be doubted whether a community is well organized; with it, there is no question as to that, and if the premises are correct we may expect a civic center to develop as an entirely natural part of the plan. It will not be forced, or exotic in character or expression; on the contrary, it will gain its charm and interest through being marked by the individuality of the city—the most precious quality the city has.

With the civic center, however, this volume, having to do with the width and arrangement of streets, is not closely concerned. It is enough to point out that of real city planning the civic center is a by-product, not the whole thing—as its spectacular appeal has sometimes led people to believe. It is a flower, significant, as are various others, of the health of the plant of civic spirit—of its maturity into beauty. And until beauty is the product, we shall know—as we know in all work—that perfection is still before us. In planning towns, we have to realize that no social order is ideal, no engineering faultless, no efficiency complete until expressed in beauty. So, by the like test, the streets of the city will not be properly arranged until, with their adjustment to purpose, beauty has appeared.

APPENDIX

CERTAIN PRINCIPLES OF A UNIFORM CITY PLANNING CODE

EXTRACTS FROM THE PRELIMINARY REPORT OF THE COMMITTEE ON LEGAL AND ADMINISTRATIVE METHODS OF THE NATIONAL CONFERENCE ON CITY PLANNING. PRESENTED TO THE CONFERENCE AT PHILADELPHIA, 1911.

BY ANDREW WRIGHT CRAWFORD, CHAIRMAN,
Assistant City Solicitor of Philadelphia.

THE Executive Committee of the National Conference on City Planning has suggested, to its Committee on Legal and Administrative Methods, the preparation of a uniform City Planning Code. Sweden, England and America offer precedents for such a code, but these precedents are decidedly limited. The English Town Planning Act, passed in 1909, under the leadership of John Burns, M.P., is the English precedent, but the constitution of our States and of the United States prevent it from being of much assistance to us, although its general objects and principles might be incorporated in an enactment specially framed to meet our needs.

The uniformity of an American code is suggested by the Uniform Negotiable Instruments Law, passed by forty States, and the Acts on Sales and certain other topics now being considered by the Legislatures of the several States, to avoid the medley of decisions arising from different interpretations of the common law.

Any code of city planning, with our present knowledge of the subject, can be but tentatively drawn. This was recognized by the Executive Committee in its suggestion that a preliminary draft only of a city planning code should be submitted, with the expectation that it will be recommitted to the succeeding committee on Legal and Administrative Methods for such changes, alterations and additions as may appear desirable as the result of the deliberations of this congress. As your researches reach more and more under the surface, into the relationship of the different elements that enter into city planning, and as the natural laws that control such relationships are more and more clearly discovered and enunciated, the provisions of the statutory law that should be enacted accordingly will be more and more clearly defined.

The subject is difficult because of the varying laws already in existence throughout the Union. That the laws in each State are entitled to consideration is obvious from any practical point of

view. Each State is the sole judge of the functions which are to be delegated to its cities. As the city is but an arm of the State, and therefore a mere agent, it can generally exercise no power or authority which is not specifically or by necessary implication conferred upon it. When there are forty-six different legislatures with varying knowledge of the needs of cities or of their relative importance, of the questions social as well as governmental that they present, it is but to be expected that the charter powers of municipalities throughout the United States will differ even in important respects from the charter powers of other cities of the same class.

SCOPE OF PROPOSED CODE

Before the preparation of even preliminary drafts of acts, it was necessary to determine the conclusion that the Committee should come to in regard to the scope of the code. An act that wipes out existing authorities and substitutes a different body will meet the political opposition of all existing authorities and will have much less chance of passage. Should a City Planning Code upset existing authorities or should it be so worded that, with necessary changes, it can readily be made to fit into existing municipal governmental schemes? Should an entirely new body be given authority to plat the streets of a municipality, or should a new board be given authority to supervise the platting of city streets by the body already in existence to make it homogeneous with the schemes of other departments? Should a new scheme *in toto* be devised, taking advantage of all that has been learned and of every suggestion that can be made by different cities, or should a city planning department to act from the broad point of view of wise policy in city planning be devised which shall interfere with existing machinery as little as possible? This Conference is a practical body brought together to get practical results. The best way to get these results is to secure their adoption in principle, without too great concern over details. It has therefore seemed to your Committee the wiser policy, at this stage of the development of city planning, to provide for a new body to be superimposed upon existing authorities, who themselves shall be represented in that body, rather than to attempt to create a complete substitute. For this the Connecticut Act that created the Hartford City Plan Commission offers valuable suggestions.

As it appears likely that certain of the provisions of a City Planning Code will be attacked, your Committee deems it advisable to present not one act but several acts which, as time goes by, may be brought together. If an attempt were made now to combine all the provisions that appear desirable in one act, it may well be that one set of its provisions would be held unconstitutional, and that, therefore, the entire code might be held unconstitutional, although other provisions were well within the power of the law-making bodies. The question in such cases is whether the unconstitutionality

of the set of provisions so affect the whole act that its remaining provisions cannot be held valid apart from them. For instance, the power of excess condemnation and the power of preliminary platting in undeveloped sections, so as to prevent the erection of buildings within the limits of the streets platted, are each of them subject to objections regarded a generation ago as fatal. Why then make the constitutionality of one dependent more or less upon the constitutionality of the other? Why not let each stand or fall on its own merits? Your Committee deems it only reasonable that each provision should be construed by itself, confident though they are that each will be generally upheld. As time goes on, the advantage of codifying these various acts into one uniform city planning act will become more and more obvious.

EXCESS CONDEMNATION

City planning necessarily has to do with transportation in the broadest sense. Transportation covers not only vehicular methods of transportation from one point to another by means of steam railroads or street transit systems on the surface, above, or below ground, but the method of transportation by the streets themselves. The space occupied by streets includes from about twenty-two per cent to fifty per cent of the area of the developed portions of cities. Your Committee presents herewith the legal aspect of street reconstruction and of street platting.

Street reconstruction chiefly concerns the opening of new streets and the widening of old ones in the central or developed portions of cities, and street platting chiefly has to do with the location of streets in undeveloped areas. While in individual cases reconstruction may possibly be done altogether at the expense of the taxpayers, general reconstruction, such as we have been familiar with for years abroad and such as will continue necessarily through all time in every city, can only be undertaken effectively if the city may condemn more land than it wants in order to resell with proper restrictions. It is practically essential that the power of excess condemnation shall sooner or later be upheld, if American cities are to be rebuilt as European cities are being rebuilt.

Excess condemnation was considered by the Conference on City Planning at each of its former sessions and a brief reference here will, therefore, suffice. We would refer to constitutional changes proposed in Massachusetts and New York expressly authorizing such acts of excess condemnation. Whether this is an advisable method is at least questionable. While the constitutional change may be effective in the States concerned, it will not avoid a difficulty possibly presented by the constitution of the United States. The constitutions of the States providing for excess condemnation will have to be upheld as not unconstitutional under the constitution of the United States. For my own part, I am inclined to think it likely that a decision by a State court upholding excess condemnation

within reasonable limits would in turn be upheld by the Supreme Court of the United States. Up to the present time there has been no case before the Supreme Court of the nation in which a decision of a State court holding that a condemnation is for a public use has been reversed. If, instead of a decision of a court of competent jurisdiction, a constitutional declaration passed by the people at the polls is presented to the Supreme Court of the United States, I fear an entirely different attitude will be found upon the part of that distinguished tribunal.

STREET PLATTING

The other main problem with regard to the street system concerns chiefly the platting of streets in undeveloped areas. Here it is a pleasure to a loyal son of Pennsylvania to be able to say that his mother State points the way; for, in Pennsylvania, we have an act which provides that the engineering authorities may plat streets and that when the streets are so platted no building shall be erected within the limits thereof or, if erected within such limits, no damages shall be paid the owner when the street is formally opened. By "opening" is meant the acquisition of the public right of way. It has been decided in other States that such acts are unconstitutional because they deprive the owner of an important use of his property during the period between platting and opening, without compensation. This act has been upheld in Pennsylvania and it is at least questionable whether it would not now be upheld generally throughout the country as a reasonable exercise of the police power. We believe, however, that it is altogether unnecessary to rely upon the police power, because all rights of owners can readily be provided for through compensation by an act slightly varying from that of Pennsylvania.

The main outline of such an act, as drafted by the Committee, is as follows, the latter parts varying from the Pennsylvania act: The act provides that the proper authority shall have the power to plat streets in undeveloped areas, that thereafter no building shall be erected by the owner within the limits of such streets, or, if erected, that no damages shall be paid the owner when the formal right of way is acquired through proceedings of eminent domain. The platting of the streets does not give nor attempt to give title to the right of way, but it does deprive the owner of the use of the ground within the right of way for building purposes. The act therefore authorizes and directs that the owner shall be compensated for the deprivation of the use of his property to this extent: when the street is formally opened, he is to receive full compensation, not only for the easement then acquired by the city, but, in addition, for this deprivation between the date of platting and the date of opening. He will, therefore, secure compensation for every element of his ownership. Should the street be platted and thereafter the location of the proposed street be changed, the act provides that the owner

shall then have the right to secure compensation for the deprivation of the use of his property within the platted right of way during the time between the original platting and the subsequent removal from the plan. By this method he will secure compensation for the right of which he has been deprived for that length of time. It will be observed that the owner has no immediate right of action because of the platting of the street. It is unnecessary in our view of the law that he should have any immediate right to such compensation. Justice Sharswood of the Supreme Court of Pennsylvania stated that when property is taken by the right of eminent domain "the obligation of compensation is not immediate. It is required only that provision should be made for compensation in the future." Hammett v. Phil., 65 Pa. 146 (1870).

If this statement by one of the greatest judges of Pennsylvania should not be regarded as law by other States, it will then be necessary in such States to provide for immediate compensation to the owner for the loss of the use of his property to this extent. But we are satisfied that generally this will not be found necessary, except where the State constitution expressly provides for compensation before any taking at all, and in such a State it is respectfully submitted that the constitution should be changed.

Those of you who are familiar with the practical working of the law of condemnation will not fail to observe that this act would create a new element of damages in such proceedings. The fact of creating this additional element will be beneficial, although it may slightly increase the money that goes out of the city treasury. If the Board of Surveyors knows that should it plat a street and thereafter find it advisable to change its location, then the property owner will be entitled to damages for his inability to build upon the platted area meanwhile, the Board will consider its action carefully before it originally plats the street. This is an advantage because the careful study will far more than compensate for the slight additional payment to the owner.

Closely akin to this matter is the power to widen streets gradually by providing that, as houses fronting thereon are altered they must be set back to a new building line. For instance, the widening of Chestnut Street from 50 to 60 feet has been proceeding since 1883, and you may see four buildings between Thirteenth and Broad Streets on the old line. The city has now reached the point where it can order these buildings, that remain, back to the new line, without overburdening the public funds. An act to give this power generally has been prepared.

PLATTING OF PUBLIC RESERVATIONS

The next Act of Assembly which the Committee has prepared is that concerning the platting of areas in undeveloped sections of the city, which areas are intended for parks, playgrounds or public buildings of various kinds. It is just as important to systematic

and wise city planning that reservations should be platted as sites for future parks, playgrounds, school-houses, fire-houses, libraries, etc., as it is that the streets should be located in advance. But the ground should be reserved generally, instead of specifically, so that future developments may determine the precise use to be made of the particular area. The act provides for the platting of the areas intended for such purposes and also provides that no building shall be erected on such areas, by the individual owner, and if erected that no damages shall be given for them. The same provision is inserted providing for compensation to the owner for the loss of the use of his property for building purposes between the date of the platting and the date of actual condemnation, and, likewise, there is the same provision for compensation to the owner should the platted location be changed.

THE DISTRICTING OF CITIES

The Act of Assembly prepared by the Committee on this point follows the Boston precedent. It concerns the restriction of buildings in outlying areas to heights that shall not be greater than the width of the street upon which they front.

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